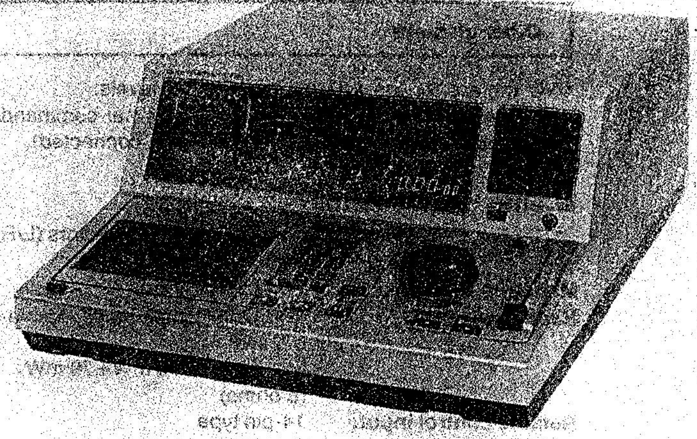
ORDER NO. HAD85032448C0
A-6

Service Manual

Compact Disc Player
SL-P50P

COMPACT disc DIGITAL AUDIO

DIGIT/II 91000123 90 05
01140463 2 ST
SM-SLP50P
SVC MNL .. DOM/PX/AC/MM



Color	Areas
(K) (S)	[M] ...U.S.A.
(K) (S)	[MC]...Canada.
(K) (S)	[E] ...Switzerland and Scandinavia.
(K) (S)	[EK] ...United Kingdom.
(K) (S)	[XL] ...Australia.
(K) (S)	[EG] ...F.R. Germany.
(K) (S)	[EB] ...Belgium.
(K) (S)	[EH] ...Holland.
(K) (S)	[EF] ...France.
(K) (S)	[Ei] ...Italy.
(K) (S)	[EC] ...Czechoslovakia.
(K) (S)	[XA] ...Southeast Asia, Oceania, Africa, Middle Near East and Central South America.
(K) (S)	[XM]...Central South America.
(K) (S)	[PA] ...East PX.
(K) (S)	[PE] ...European Military.
(K) (S)	[PC] ...European Audio Club.

Color

(K)...Black Type
(S)...Silver Type

Specifications

Specifications are subject to change without notice for further improvement.
Weight and dimensions shown are approximate.

■ General

Power supply:	for U.S.A. and CANADA 120 V AC, 60 Hz for other countries ~110/120/220/240 V 50 or 60 Hz
Power consumption:	85 W
Output level:	+4 dBm/−20 dBm (0VU, switchable) (at 0 dB fader setting), 600Ω, balanced
Dimensions (W×D×H):	43×53×20 cm (16$\frac{15}{16}$"×20$\frac{7}{8}$"×7$\frac{7}{8}$")
Weight:	19.5 kg (43 lbs)

■ Audio

No. of channels:	2 (left and right stereo)
Frequency response:	20–20,000 Hz±0.5 dB
Dynamic range:	more than 96 dB
S/N ratio:	more than 96 dB
Total harm. distortion:	less than 0.005% (1 kHz, 0 dB)
Channel separation:	more than 90 dB
Wow and flutter:	below measurable limit

■ Signal format

Sampling frequency:	44. 1 kHz
Correction system:	Technics Super Decoding Algorithm
D-A conversion:	16-bit linear

■ Pickup

Type:	Astigma 3-beam
Light source:	Semiconductor laser
Wavelength:	800 nm

■ Access times

From standby mode:	within 0.4 sec.
Track/time specification:	within 4 sec.
Index specification:	within 8 sec.
Auto search/auto cue:	within 5 sec.

■ Operating temperature

The highest operating temperature in each section of the player does not exceed the limits of the components used in those sections. However, the player must not be used in an environment no warmer than 40°C. (100°F)

Technics

Matsushita Engineering and Service Company
50 Meadowland Parkway,
Secaucus, New Jersey 07094

Panasonic Hawaii Inc.
91-238 Kauhi St. Ewa Beach
P.O. Box 774
Honolulu, Hawaii 96808-0774

Matsushita Electric of Canada Limited
5770 Ambler Drive, Mississauga,
Ontario, L4W 2T3

Panasonic Sales Company, Division of Matsushita Electric of Puerto Rico, Inc.
Ave, 65 De Infanteria, KM 9.7
Victoria Industrial Park
Carolina, Puerto Rico 00630

Matsushita Electric Trading Co., Ltd.
P.O. Box 288, Central Osaka Japan

Panasonic Tokyo Office
Matsushita Electric Trading Co., Ltd.
1-2, 1-chome, Shibakoen, Minato-ku, Tokyo 105, Japan

■ Continuous operation

Under normal conditions, this player can be operated continuously for more than ten hours without exceeding the internal temperature limits stated in the above section.

■ Insulation resistance

Measured at up to 500 V between the AC power supply input terminal and cabinet. over 50 MΩ.

■ Monitor speaker

Impedance:	4Ω
Dimensions:	8 cm diameter
Output:	1 watt max.

■ Functions

Search modes:	•Auto search/auto cue (for beginnings of tracks) •Numeric button search •Search dial search
Access accuracy:	13.3 ms (1 frame)

■ Display

Graphic display

- Bar display of all track locations.
- Bar display of starting location.
- Bar display of current pickup location in one minute units.
- Digital display of current pickup location by track number, min. and sec.
- search indicator that illuminates during search operations.

Digital display

- Starting location by track/index number, min., sec. and frame when start location button is pressed.
- Current pickup location when actual location button is pressed.
- Remaining time of track currently being played in min. and sec. when track remaining time button is pressed.
- Remaining number of tracks and playing time of disc when disc remaining time button is pressed.
- error indicator that illuminates for erroneous operations and when the disc can not be played.
- on line indicator that illuminates when the unit is in the on line disc play mode.
- Emphasis indicator that illuminates when a disc having pre-emphasis is played.

Other displays

- VU meters for the L/R channel output levels.
- cue indicator that illuminates when external commands are received (when a remote control unit is connected).

■ Line output terminals

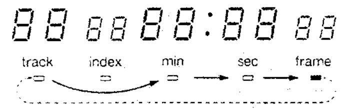
	Cannon (3-pin) connectors (L/R) Type: XLR-3-32
Matching impedance:	600Ω (balanced)
Headphone jack:	Compatible impedance; Above 8 ohms Max. output; 70 mW+70 mW (8 ohms)
Remote control input:	14-pin type
Sub-code:	DIN 8P

Reference

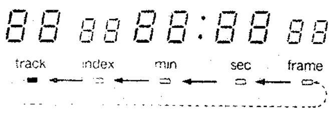
■ Disc specifications

Diameter:	12 cm
Thickness:	0.12 cm
Spindle hole:	1.5 cm
Min. inside diameter of recorded section:	5 cm
Max. outside diameter of recorded section:	11.6 cm (disc is played from the inside to the outside edge)
Direction of rotation:	Counterclockwise (seen from recorded side of disc)
Tracking speed:	1.2 to 1.4 meters/second, CLV (Constant Linear Velocity)
Rotations per minute:	About 500 to 200 rpm
Playing time:	About 60 minutes (up to 75 min. can be contained)
Track pitch:	1.6 μm

→ forward cursor:



← backward cursor:



To specify an index number, move the cursor to the index item using these buttons and then press two numeric buttons.

Controls for specifying disc play starting locations ⑥–⑬

These controls are used to specify the disc play starting location in one of three ways.

⑧ Cursor indicator

Shows the present location of the cursor.

⑨ Clear button

Press this button to cancel all starting location settings set using the numeric buttons.

When this button is pressed, the disc play starting location shown in the digital display is also cancelled.

The cursor will then move back to the track position.

⑩ Standby button

Press this button to switch the unit to the standby mode.

When this button is pressed, the pickup moves to the starting location shown in the digital display but disc play does not begin and the standby button indicator lights. Disc play can now be started in 0.4 seconds by pressing the on line play button.

■ Auto-Search Operation

If no starting location is shown in the digital display, auto search can be activated by specifying a track number using the numeric buttons and then pressing the standby button immediately afterward. The beginning of the specified track will be located and the unit will then switch to the standby mode. The search indicator in the graphic display illuminates during auto-search operation.

When auto search has ended and the unit has switched to the standby mode, the starting location will be shown digitally in the digital display starting location section.

2. Starting location specification using auto-search.

(During the standby mode, only the monitor play, on line play, stop and search buttons can be used.)

⑪ Search button

Press this button to move the pickup using the search dial.

When this button is pressed, 0.2 seconds of the disc immediately before the starting location is played repeatedly.

The search mode[Note 4] setting alternates between slow and fast (indicator lights) each time the search button is pressed. To use the disc location set using the search dial as the disc play starting location, press the standby button.

⑫ Search dial

3. Starting location specification by manual search.

Use this dial to perform manual search operations.

Rotate to the left and right to move the pickup from side to side. If the search button is set to the slow mode, each dial rotation corresponds to one second of playing time. If the search button is set to the fast mode, each dial rotation corresponds to about 20 to 40 seconds of playing time. When the search dial is used during monitor play, the dial can be used for fast forward or return (one rotation corresponds to about 20 to 40 seconds of playing time).

⑬ Stop button

Press this button to stop monitor play or manual search operation or to release the standby mode.

(The disc does not stop spinning.)

Controls for monitor disc play ⑭–⑱

⑭ Speaker switch

Press this switch (■_▬) to turn on the speaker during monitor disc play. Press again to return to the out position (▬_■) to turn the speaker off.

The speaker is automatically switched off when on line disc play is started even if the speaker switch is in the on (▬) position.

⑮ Monitor speaker

The combined left and right channel output is heard through this speaker during monitor disc play (when the speaker switch is on).

This speaker is automatically switched off during on line disc play.

⑯ Monitor volume control

Use this control to adjust the volume level of the monitor speaker.

This control also raises and lowers the headphone volume level.

⑰ Monitor play button

Press this button to begin monitor disc play from the specified location (monitor indicator illuminates).

During monitor play, the output signal is heard through the rear panel MONITOR OUT terminals and the monitor speaker. No signal is sent to the LINE OUT terminals.

Otherwise, the unit functions in the same manner as in on line disc play. Monitor play can be performed any number of times. Once the starting location has been determined, press the standby button to switch to the standby mode and then the on line button to begin on line disc play.

If the search dial is rotated during monitor play, the dial can be used for fast forward or return. The disc play starting location is not changed when the search dial is used.

⑱ Headphone jack

Standard stereo headphones can be connected to this jack.

Disc output can be heard through headphones during on line disc play and monitor disc play even when the speaker switch is off. Adjust the volume using the monitor speaker volume control.

Controls for fader start ⑲–⑳

⑲ Fader start switch

Press this switch (■_▬) to activate the fader start[Note 5] function (fader indicator illuminates).

The fader control should be set to ∞ before the fader function is used.

⑳ Fader control knob

Use this control to raise and lower the line out level and monitor out level.

When the fader start switch is on, raising this control from the ∞ position causes on line disc play to begin without pressing the on line play button. Use this function to begin disc play in a very smooth manner.

The display and indicator section ㉑–㉘

The various displays (㉑–㉘) are used to monitor the disc play settings and current status.

㉑ VU meters

Shows the left and right channel disc play signal level.

The level readings shown by this meter are those for the left and right signals before passing through the fader section, not the levels at the LINE OUT terminals. Note that this meter does not show peak values.

㉒ cue indicator

This indicator illuminates when the rear panel REMOTE 1 terminal is connected to a remote control unit.

㉓ on line indicator

This indicator illuminates when on line disc play is started by pressing the on line play or raising the fader control.

This indicator remains on while the unit is in the on line disc play mode to show that a signal is being sent to the rear panel LINE OUT terminals.

㉔ Emphasis indicator

This indicator illuminates when a disc having pre-emphasis[Note 6] is played.

This indicator shows the recording characteristics of the disc being played. When a disc having pre-emphasis is played, this unit's de-emphasis circuitry is automatically switched on.

㉕ error indicator

This indicator illuminates when the unit is in an abnormal operating status and when an erroneous operation has been performed.

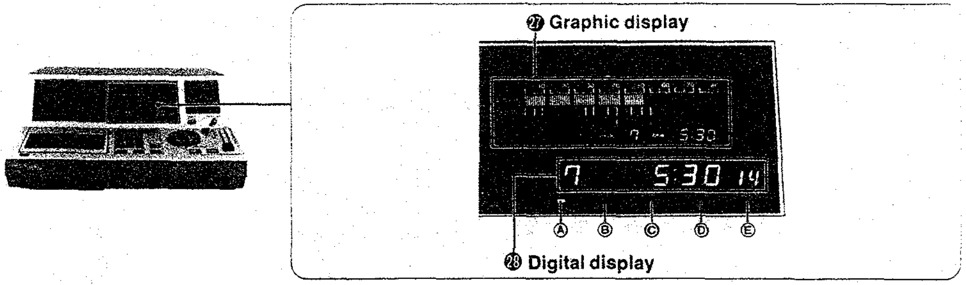
Examples of when this indicator illuminates are when a disc has been loaded upside-down, when the disc is seriously soiled, damaged or deformed or when an invalid button has been pressed (for example, when a time or frame number not existing on the disc has been specified or when a nonexistent time such as 70 seconds has been entered).

If an invalid number has been entered, the digital display will flash on and off, too.

If this indicator illuminates, determine the mistake and repeat the operation correctly.

㉖ search indicator

This indicator illuminates during auto-search operation.


㉗ Graphic display
7 5:30 14
Ⓐ
Ⓑ
Ⓒ
Ⓓ
Ⓔ
㉘ Digital display

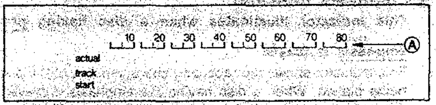
Graphic and digital displays ㉗–㉘

㉗ Graphic display

The graphic display shows the current pickup location, location of each between-tracks gap and the starting location of each track.

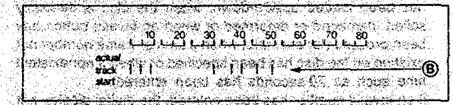
Ⓐ Time scale

A scale used to keep track of disc playing time.
The scale covers up to 80 minutes of playing time.


10 20 30 40 50 60 70 80
actual
track
start
Ⓐ

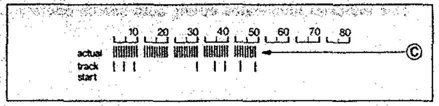
Ⓑ Track display

Shows the beginning and end of each track in minutes.
For example, if the disc has seven tracks, this display will show eight bars as shown below.
The display shown below is one for a disc containing seven tracks in which track 3 is very long.


10 20 30 40 50 60 70 80
actual
track
start
Ⓑ

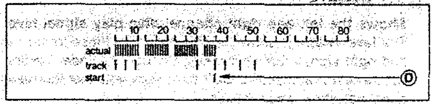
Ⓒ Actual time indicator

Shows the current position of the pickup in minutes.
In this scale, each bar corresponds to one minute.
In the diagram below, the pickup is playing the 49th minute of the disc, almost at the disc's end.


10 20 30 40 50 60 70 80
actual
track
start
Ⓒ

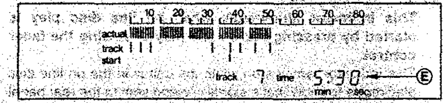
Ⓓ Start indicator

Shows the point where disc play will begin if a starting location has been specified.
When a specific disc location is being located using the search dial, this indicator moves as the search dial is rotated.
In the diagram below, disc play will be started from the beginning of the fifth track.


10 20 30 40 50 60 70 80
actual
track
start
Ⓓ

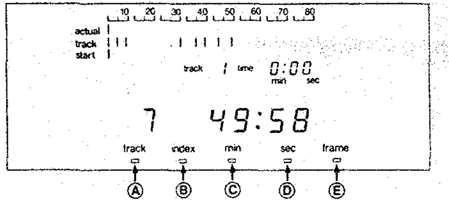
Ⓔ Pickup location indicator

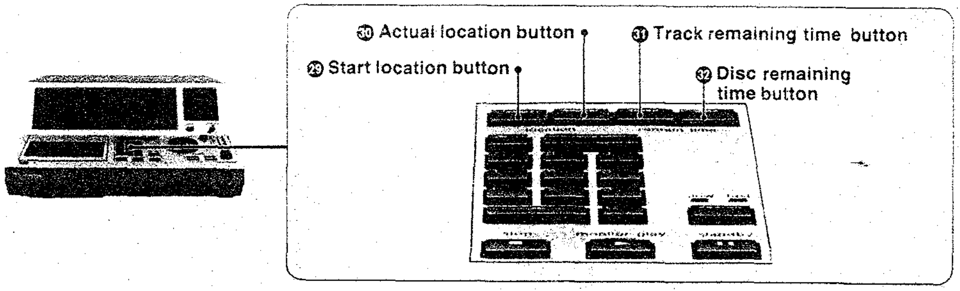
Shows the current position of the pickup digitally by track number, minutes and seconds.
This indicator complements the approximate reading supplied by the actual time indicator by showing the precise position of the pickup.
In the diagram below, the pickup is at the 5 min. 30 sec. point of track 7.


10 20 30 40 50 60 70 80
actual
track
start
track 7 time 5:30
min sec
Ⓔ

㉘ Digital display

This display shows the disc play starting location, current location of disc play, remaining playing time in the track currently being played and the remaining number of tracks and playing time on the disc depending on the display mode setting. The cursor indicator below each of the display items (track Ⓐ, index Ⓑ, min Ⓒ, sec Ⓓ and frame Ⓔ) illuminates to show which item will be altered by the numeric buttons.


10 20 30 40 50 60 70 80
actual
track
start
track 1 time 0:00
min sec
7 49:58
track
index
min
sec
frame
Ⓐ
Ⓑ
Ⓒ
Ⓓ
Ⓔ

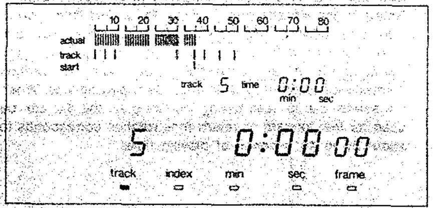

㉚ Actual location button
㉛ Track remaining time button
㉙ Start location button
㉜ Disc remaining time button

Starting location and remaining time display controls ㉙–㉜

Use these controls to confirm the starting location, current pickup location, remaining playing time in the track currently being heard and the remaining number of tracks and playing time on a disc.

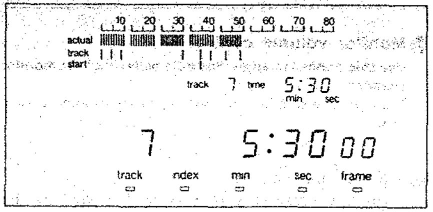
㉙ Start location button

Press this button to display the disc play starting location.
When this button is pressed, the start location button indicator illuminates. The unit is automatically switched to this display mode when power is switched on unless another button is pressed.
In the diagram below, the starting location is at the beginning of track 5.


10 20 30 40 50 60 70 80
actual
track
start
track 5 time 0:00
min sec
5 0:00 00
track
index
min
sec
frame

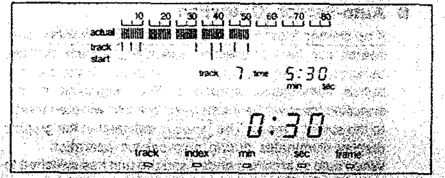
㉚ Actual location button

Press this button to display the current location of the pickup.
When this button is pressed, the actual location button indicator illuminates.
In the diagram below, the pickup is located at the 5 min. 30 sec. point of track 7.


10 20 30 40 50 60 70 80
actual
track
start
track 7 time 5:30
min sec
7 5:30 00
track
index
min
sec
frame

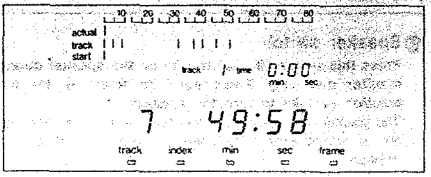
㉛ Track remaining time button

Press this button to display the remaining playing time of the track currently being played.
When this button is pressed, the track remaining time button indicator illuminates.
In the diagram below, 5 min. and 30 sec. of track 7 has been played and 30 seconds is remaining.
The frame number is not displayed.


10 20 30 40 50 60 70 80
actual
track
start
track 7 time 5:30
min sec
0:30
track
index
min
sec
frame

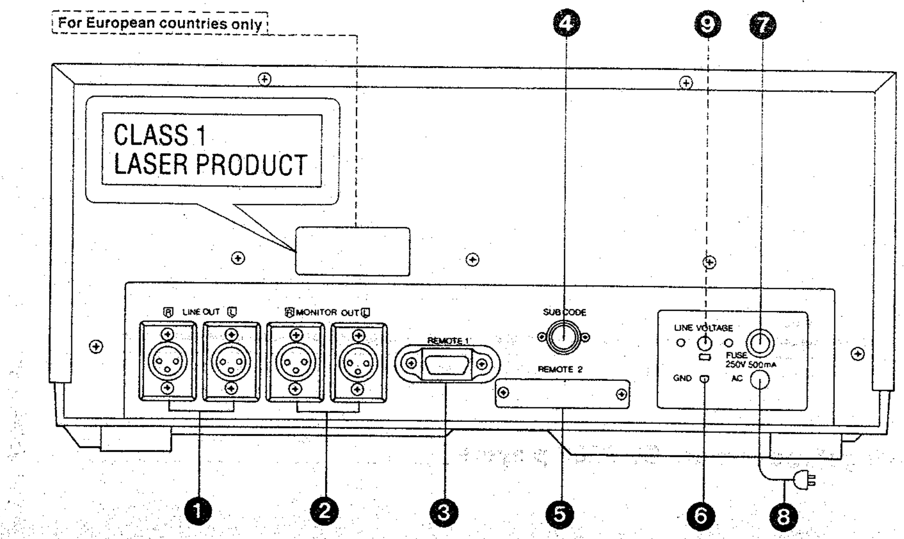
㉜ Disc remaining time button

Press this button to display the remaining number of tracks (including the track currently being played) and the remaining playing time (in min. and sec.) on the disc in the holder.
When this button is pressed, the disc remaining time button indicator illuminates.
In the diagram below, the disc has 7 tracks having a total of 49 min. and 58 sec. of playing time.


10 20 30 40 50 60 70 80
actual
track
start
track 1 time 0:00
min sec
7 49:58
track
index
min
sec
frame

This button can also be used to display the total number of tracks and total playing time of a disc by pressing it just after a disc has been loaded.
The remaining track and time display is possible after play of track one has begun.

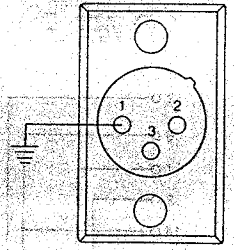
■ CONNECTONS


For European countries only
CLASS 1
LASER PRODUCT
R LINE OUT L
R MONITOR OUT L
REMOTE 1
SUB CODE
REMOTE 2
LINE VOLTAGE
FUSE
250V 500mA
GND
AC
④
⑨
⑦
①
②
③
⑤
⑥
⑧

❶ LINE OUT sockets

LINE OUT sockets for cannon (3-pin) type plugs.

■ Connection of cannon 3-pin connecter



1........Chassis ground (earth)
2.......... Signal cold
3.......... Signal hot

❷ MONITOR OUT SOCKET

MONITOR OUT sockets for cannon (3-pin) type plugs.

Connect the same manner as line out sockets.

❸ REMOTE (1) connector

Use this connector with a remote control unit to remotely start and stop on line disc play.

This connector can be used for connection of a cue display switch and on line and standby indicators.

This is the standard remote control connector. It can be used to start on line play. It is also possible to connect a switch for the cue indicator or an on line/standby indicator to this connector. When two or more SL-P50P players are used, use this connector to link the players to each other.

❹ SUBCODE socket

The Compact Disc subcode signal is delivered through this socket.

This socket is provided for system interface with future components.

Do not connect any other components to this socket.

❺ REMOTE (2) Mounting section

Use this section to attach the 25-pin remote control socket (sold separately) to permit remote control by interfacing with the RS-232C.

❻ GND TERMINAL

Use this terminal to make the ground connection for this unit in order to assure safe operation and prevent the occurrence of noise.

❼ FUSE

Have this fuse replaced only by authorized service personnel.

❽ Power cord

Connect this cord to a wall socket or an AC OUTLET.

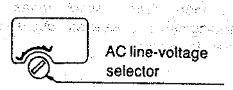
❾ AC line-voltage selector

Caution:

Make sure that the AC line-voltage selector is matched to your local voltage before connecting the AC power plug. Never connect to a DC socket.

If the pre-selected voltage is different from your local voltage, turn the AC line-voltage selector with a screw-driver so that it corresponds to your local voltage.

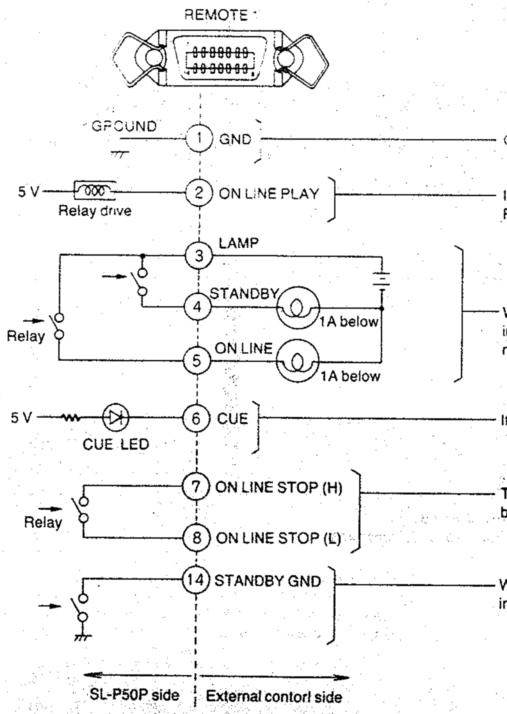
The AC line-voltage selector is located at the back of the unit.


AC line-voltage selector

There is no AC line-voltage selector for some countries; the correct voltage is already set.

■ USING THE REMOTE (1) TERMINAL

The remote (1) circuitry and connections


REMOTE 1
GROUND
1 GND
5 V
Relay drive
2 ON LINE PLAY
3 LAMP
4 STANDBY
1A below
Relay
5 ON LINE
1A below
5 V
CUE LED
6 CUE
Relay
7 ON LINE STOP (H)
8 ON LINE STOP (L)
14 STANDBY GND
SL-P50P side
External contorl side

Connected to ground

If this terminal is grounded, on line play will begin.
Relay Relay DC power supply

When connected to an external unit, the on line and standby indicators illuminate when the player is in the corresponding mode.

If this terminal is grounded, the cue indicator illuminates.

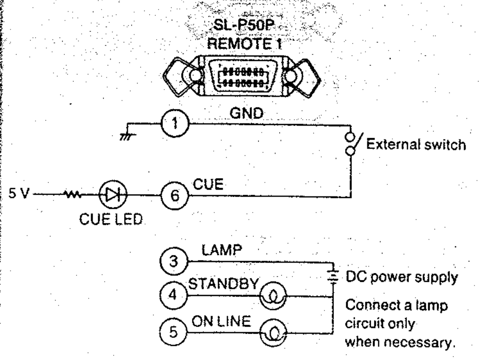
The instant on line play stops, the interval between 7 and 8 is briefly shorted.

When the player is in the standby mode, this is grounded by an internal relay.

Example of using a cue indicator

1. General instructions

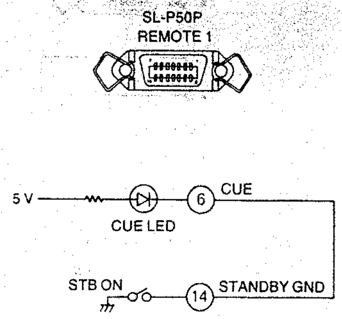
To set up a cue indicator in a control panel or other point away from the player, connect the switch between terminals 1 and 6. The cue indicator will then illuminate when the switch is on.


SL-P50P
REMOTE 1
1 GND
External switch
5 V
CUE LED
6 CUE
3 LAMP
4 STANDBY
5 ON LINE
DC power supply

Connect a lamp circuit only when necessary.

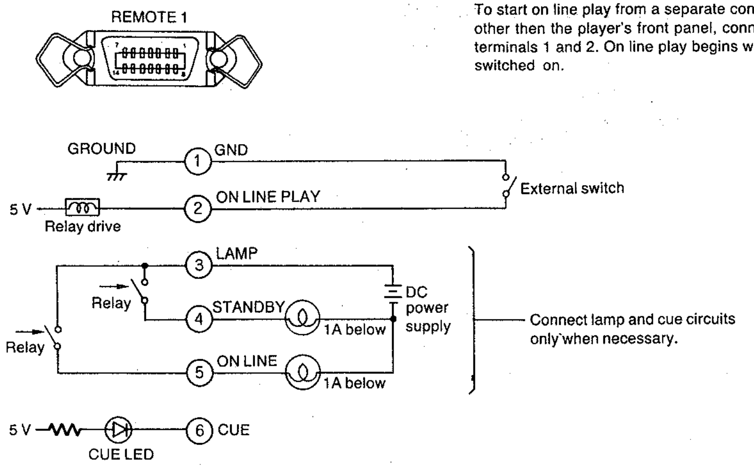
2. To cause the cue indicator to illuminate when a player is in standby mode.

Connect terminals 6 and 14 of the remote (1) terminal. Now, the cue indicator will illuminate together with the front panel standby indicator.


SL-P50P
REMOTE 1
5 V
CUE LED
6 CUE
STB ON
14 STANDBY GND

On line play by remote control

To start on line play from a separate control panel or other point other then the player's front panel, connect the switch between terminals 1 and 2. On line play begins when the switch is briefly switched on.

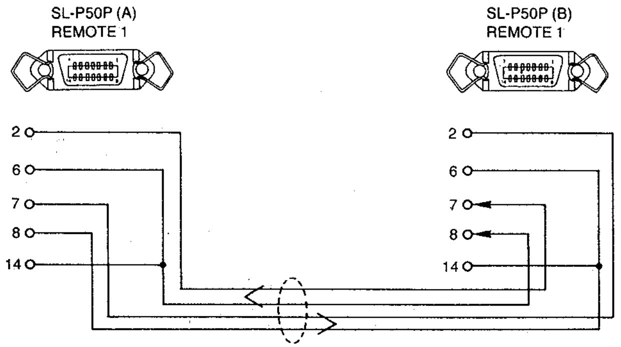

REMOTE 1
GROUND
① GND
External switch
5 V
② ON LINE PLAY
Relay drive
③ LAMP
Relay
④ STANDBY
1A below
DC power supply
Relay
⑤ ON LINE
1A below
Connect lamp and cue circuits only when necessary.
5 V
⑥ CUE
CUE LED

When linking two or more players

This explanation describes how to interconnect two players (A and B).
Two players can be interconnected to make possible the following functions.

- When the end of a track is reached in player A during on line disc play, on line play of player B can be started automatically.
- If the pickup is moved to the desired starting location using player B while player A is used for on line play, it is possible to quickly and smoothly switch from one song to another. This can also be performed from player B to player A so that you can always set the starting location of one disc while playing another. It is also possible to link three or more players.

Linking two SL-P50P CD players (When internal switch is set to auto-pause)

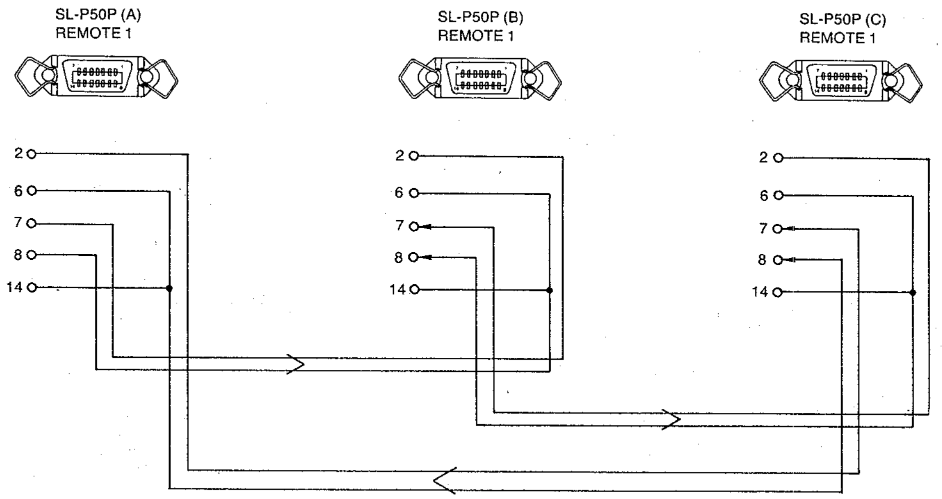

SL-P50P (A)
REMOTE 1
SL-P50P (B)
REMOTE 1
2
6
7
8
14
2
6
7
8
14

Special interconnection cable

Step	Operation	Player status
1	Set starting point on player A and press on line play button.	On line play of A begins and on line indicator illuminates. (first track)
2	Set starting point on player B and press standby button.	B switches to standby mode and cue indicator illuminates.
		When end of track is reached on A, on line indicator goes out and on line play of B automatically begins. Player B cue indicator goes out an on line indicator illuminates. (second track)
3	Set the next starting point on player B and press standby button.	A switches to standby mode and cue indicator illuminates.
		When end of track is reached on B, on line indicator goes out and on line play of A automatically begins. Player A cue indicator goes out and on line indicator illuminates. (third track)
4	Return to step 2 to continue this process. Continuous operation is stopped if the standby button of either player is not pressed after locating the starting point.	

If the internal switch is set to normal instead of auto-pause, disc play is switched to the other player only when the end of a disc is reached.

Linking three or more SL-P50P players


SL-P50P (A)
REMOTE 1
SL-P50P (B)
REMOTE 1
SL-P50P (C)
REMOTE 1
2
6
7
8
14
2
6
7
8
14
2
6
7
8
14

- To link four or more players, simply repeat this procedure.
- If each succeeding player is set to standby, A–B–C–A–B–C... continuous play is possible.

Other switching functions and additions

Auto pause switching (Single track play)

The auto pause function can be activated by changing the position of an internal switch.

The Auto Pause Function

The auto pause function automatically halts disc play immediately before the beginning of each track.

To use: Set No. 4 of the switch block (S701) of the printed circuit board inside the player to ON to activate auto pause. (No. 4 is normally left in the OFF position.)

■ GLOSSARY

Note 1

Standby and stop modes

When the standby button is pressed, the pickup※ moves to the starting position of disc play and stays there until the next command is received. This is the standby mode. Therefore, if the player is switched to the standby mode before using the monitor or on line play modes, disc play can be started within 0.4 second of the time the on line or monitor play button is pressed.
When the stop or on line stop button is pressed, the search, monitor play, on line play or other player operating mode is stopped and the numeric and open buttons can be used. This is the "stop mode". The disc continues to spin during the stop mode to permit quickly locating specific locations on the disc.

※ Pickup

The pickup is the device that reads the information on the disc surface using a laser. The pickup moves across the disc as the disc is played, but it is not visible from outside of the cabinet.

Note 2

Index

In some Compact Discs, indexes are used to divide tracks into smaller sections for easy access. If a disc includes indexes, a list of the indexes will be contained in the liner note included with that disc.

Note 3

Frame

The data contained in Compact Discs is divided into tiny segments called frames. The length of a frame is 1/75 of a second.

Output level switching (+4/−20 dB)

For normal output loads, the output level is set to +4 dBm, but the level can be switched to −20 dBm when necessary.

Switching: Change the position of the switch (S801) on the printed circuit board inside the player from +4 dBm to −20 dBm as indicated on the board.

Adding a remote control (2) socket

When the RS-232C interface (sold separately) is added, almost all of the functions on the control panel of this player can be controlled by a computer or other suitable source. Furthermore, repeat disc play and program disc play can also be controlled from the external point.

Note 4

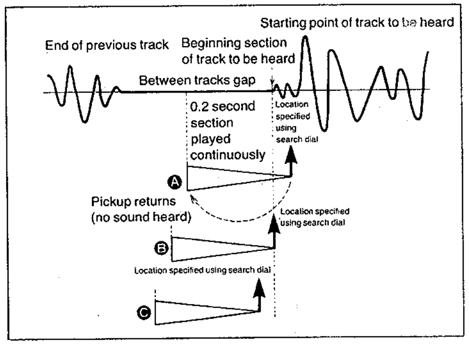
Search dial and search accuracy

A search function should be as accurate as possible. This player's search dial is used in the same basic way as the search function of a standard turntable while providing a much higher degree of accuracy.

1) How this player's search function operates

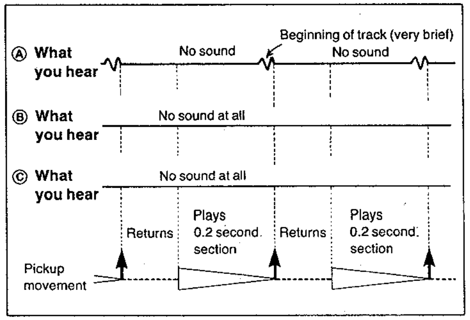
When the search mode is used, the pickup continuously plays the 0.2 second section of the disc immediately before the specified starting location. Consequently, the search dial should be rotated so that the pickup is located just before the point where disc play is to be started. This system makes it possible to start disc play at precisely the desired point with no difficulty.

For example, to locate the beginning of a particular track:


Starting point of track to be heard
End of previous track
Beginning section of track to be heard
Between tracks gap
0.2 second section played continuously
Location specified using search dial
Ⓐ
Pickup returns (no sound heard)
Location specified using search dial
Ⓑ
Location specified using search dial
Ⓒ

Track location method used in this player

When the search dial is rotated to the left, the location where disc play will be resumed is moved back from Ⓐ to Ⓑ and then Ⓒ as shown above. The exact point where disc play is resumed in each case is shown below.



Sound heard for each location specified by search dial

If a brief section of sound is heard as in case Ⓐ, the pickup location is already slightly into the beginning of the song. In this case, rotate the search dial to the left to the point where sound is no longer heard. The pickup is now precisely at the beginning of the track (shown in case Ⓑ).
If the search dial is rotated farther to the left (case Ⓒ), the precise amount of silence desired before the beginning of the track can be set. (In the slow search mode, one dial rotation corresponds to one second of playing time.)
With this search system:

1. (1) Locating the beginnings of tracks is very easy.
2. (2) The precise location of the pickup can be confirmed.
3. (3) It is possible to set the precise amount of silence desired before sound is heard.

Note 5

Fader

This function is used to fade sound in and out. The fader control does this by raising and lowering the line output level. If the fader start switch is on (indicator lit), on line disc play is automatically started when the fader control is moved upward from the ∞ position. The fader is very useful for adding special effects during on line play and when making a recording of a disc. When making a recording, for example, start a recording with the fader control at a low setting and then gradually raise the control to the "0 dB" position to insert a fade-in effect at the beginning of the recording. For fade-out, simply lower the fader control.

Fade-In

The process by which the volume level is gradually raised as a song begins. One example of how this is used is in slowly raising the volume level of the applause before the beginning of a concert so that listeners can become accustomed to the loudness of what is to follow.

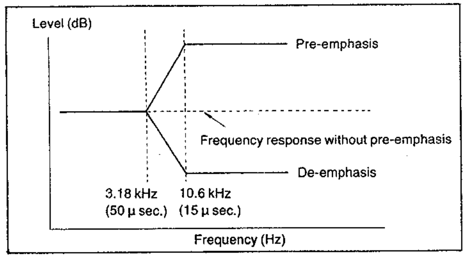
Fade-Out

The process by which the volume level is gradually lowered as a song ends. This is useful for imparting a natural feeling to the endings of songs instead of having the music end abruptly.

Note 6

Pre-emphasis

In order to further improve the S/N ratio of compact discs, some discs include a degree of emphasis in the high range called pre-emphasis. If these discs are played without any compensation, the high range will be unnaturally strong. Therefore, a corresponding amount of de-emphasis is needed to obtain the proper response. The de-emphasis circuitry of this unit is automatically activated when a disc having pre-emphasis is played so there is no need to switch this circuit on and off yourself.



Some discs are not made using pre-emphasis and, of course, the de-emphasis circuitry of this unit is automatically switched off when these discs are played.

Note 7

The pause signal

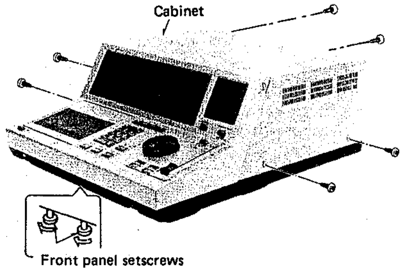
Discs contain a special signal in the blank sections between tracks called the pause signal. When this signal is reached during disc play, the display shows a "− (minus)" and a number. For example, if "−05" is displayed, a 5 second long pause signal is located at that point on the disc.

■ HOW TO CHEK THE EACH PARTS

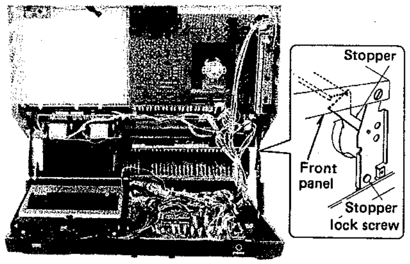
- How to check each circuit with power ON is explained in this paragraph.
- For how to remove each part, refer to "DISASSEMBLY INSTRUCTIONS".
- This unit is furnished with self-checking function by CPU. When it is in normal operation, "SL–P50" is displayed about 5 sec. after power ON. If it should fail to display, check for abnormalities beforehand.
- When checking with P.C.B. removed, turn power switch ON with care not to permit shorting.

1. Checking the operation circuit and display circuit

① Remove the cabinet. (6 setscrews)
② Completely loosen the front panel setscrews.

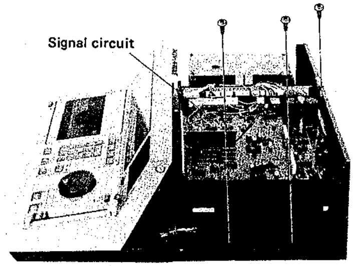

Cabinet
Front panel setscrews

③ Lift the front panel and loosen the stopper setscrew, then secure the front panel with the stopper.

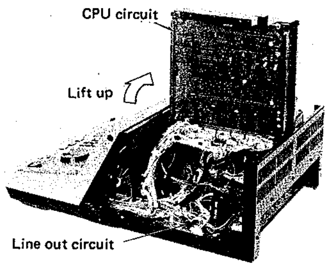

Stopper
Front panel
Stopper lock screw

2. Checking the CPU circuit, signal circuit and line out circuit

① Remove the cabinet.
② Remove the 3 setscrews of CPU and signal circuit block.

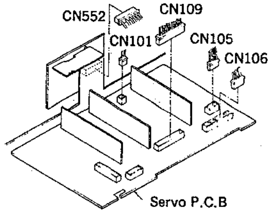

Signal circuit

③ Lift the CPU and signal circuit block and then secure the block.

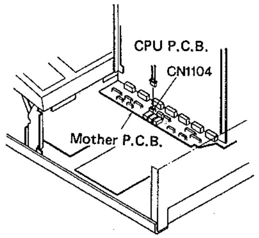

CPU circuit
Lift up
Line out circuit

3. Checking the traverse deck

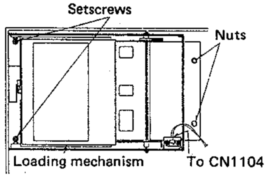
① Remove the cabinet, lift the front panel, and secure it.
② Lift the CPU and signal circuit block and then secure it.
③ Remove the connectors (CN101, CN105, CN106, CN109, CN552) of servo P.C.B.


CN552
CN109
CN101
CN105
CN106
Servo P.C.B

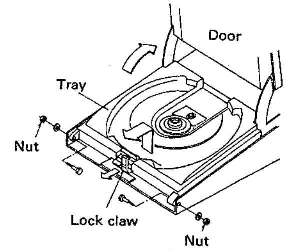
④ Remove the connector (CN1104) of mother P.C.B.


CPU P.C.B.
CN1104
Mother P.C.B.

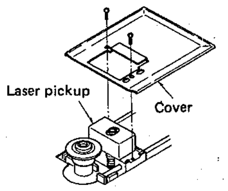
⑤ Remove the 2 setscrews and 2 nuts to take out the loading mechanism.


Setscrews
Nuts
Loading mechanism
To CN1104

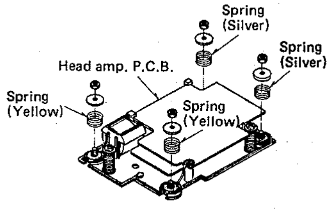
⑥ Releaser the claw of loading mechanism to open the door, then remove the disc tray. (2 nuts)


Door
Tray
Nut
Lock claw
Nut

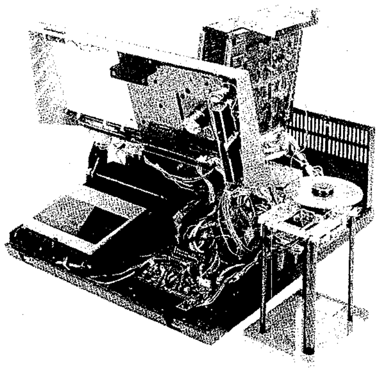
⑦ Remove the cover of laser pickup. (2 setscrews)


Laser pickup
Cover

⑧ Set up the disc tray in the original position.
⑨ Turn over the loading mechanism and remove the nuts of traverse unit to remove the traverse deck. (4 nuts)


Spring (Silver)
Spring (Silver)
Head amp. P.C.B.
Spring (Yellow)
Spring (Yellow)

⑩ Put the traverse deck on the table for adjustment.
⑪ Place the loading mechanism, after removing the traverse deck, in the original position on the bottom plate.
⑫ Insert the connectors, removed from the mother and servo P.C.B., into the original positions.
⑬ To operate the disc detection sensor of disc into the tray.
⑭ Set the disc on the traverse deck, turn the power switch ON, and check.

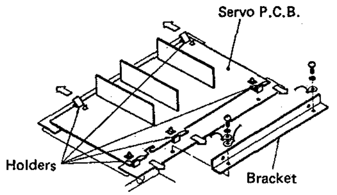


4. Servo circuit checking method

It can be checked from above the P.C.B. with the front panel lifted and secured. When check it from the back, flow the procedure given below.

① Disassemble the unit in the same way as for the traverse unit checking method.

② Remove the 2 setscrews used to secure the P.C.B. and then remove the P.C.B. from the holders (5 portions).

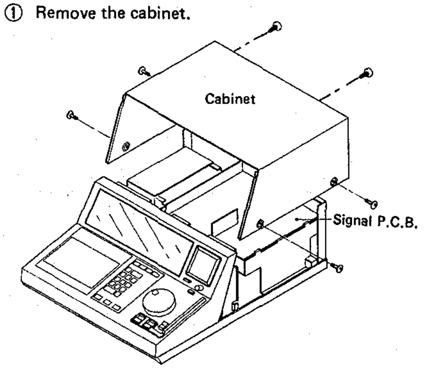

Servo P.C.B.
Holders
Bracket

■ DISASSEMBLY INSTRUCTIONS

CAUTION:
It is very dangerous to look at or touch the laser radiation. (Laser radiation is invisible.)
With the unit turned "on", laser radiation is emitted from the pickup lens.
When doing the job, removing the cabinet and disc clamper of this unit, be sure to turn the power supply off.

1. How to remove the signal and CPU P.C.B.

① Remove the cabinet.

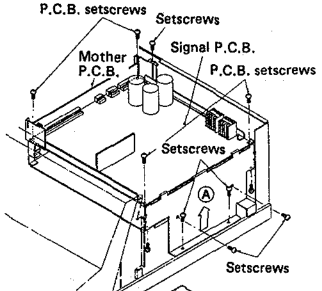

Cabinet
Signal P.C.B.

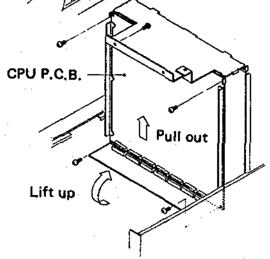
② Remove the 4 setscrews of signal circuit P.C.B.

③ Remove the 5 setscrews of P.C.B. clamps, lift the P.C.B. and secure it.

④ Remove the 4 setscrews of CPU circuit P.C.B. and remove the clamps.

⑤ Remove each P.C.B. with care not to damage the mother P.C.B.


P.C.B. setscrews
Setscrews
Signal P.C.B.
Mother P.C.B.
P.C.B. setscrews
Setscrews
Ⓐ
Setscrews


CPU P.C.B.
Pull out
Lift up

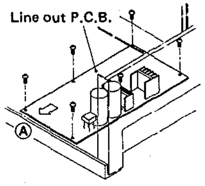
2. How to remove the line out P.C.B.

① Remove the cabinet, lift the signal and CPU circuit block and then secure it.

② Remove the 6 setscrews of P.C.B.

③ Pull out the P.C.B. in the direction of arrow Ⓐ.

Note: When pulling out the P.C B., cut off the clamper for lead wires.

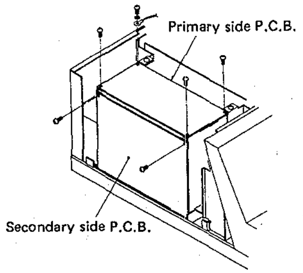

Line out P.C.B.
Ⓐ

3. How to remove the power supply circuit

① Remove the cabinet.

② Remove the 4 setscrews to remove the primary side P.C.B.

③ Remove the 2 setscrews to remove the secondary side P.C.B.


Primary side P.C.B.
Secondary side P.C.B.

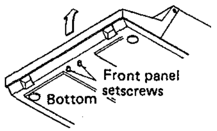
4. How to remove the front panel

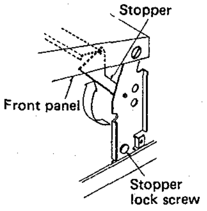
① Remove the cabinet.

② Completely loosen the 2 setscrews of front panel on the bottom.

③ Lift the front panel and secure it with stopper.

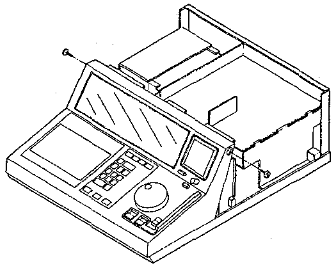
④ Remove the earth lead wire setscrews.


Front panel setscrews
Bottom

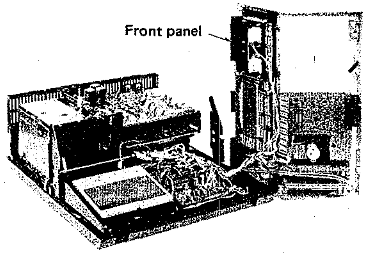

Stopper
Front panel
Stopper lock screw

⑤ Remove the front panel stopper and shift the panel back to the original position.

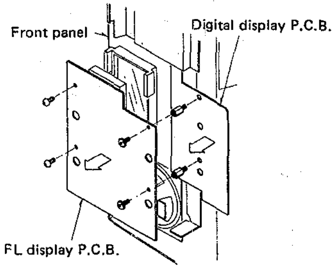
⑥ Remove the 2 setscrews on both sides of the panel.



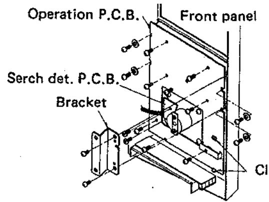
⑦ Lift the entire front panel and remove it as in the photo.


Front panel

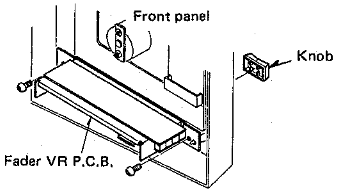
- **FL display P.C.B.**
  Remove the 4 setscrews.
- **Digital display P.C.B.**
  Remove FL display P.C.B. and 2 setscrews.


Front panel
Digital display P.C.B.
FL display P.C.B.

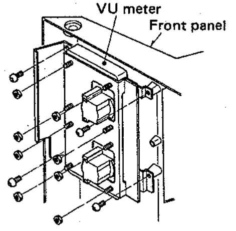
- **Operation P.C.B.**
  Remove the display P.C.B. and panel bracket and 6 setscrews.
- **Operation button**
  ① Remove the operation P.C.B. and remove the 5 setscrews.
  ② Insert a screwdriver between the P.C.B. and button while holding the claws (4 portions) with the hand.
- **Search detection P.C.B.**
  Remove the 2 setscrews.


Operation P.C.B.
Front panel
Serch det. P.C.B.
Bracket
Claw

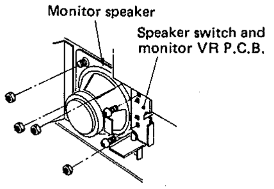
- **Fader VR P.C.B.**
  Remove the fader knob and 2 setscrews.


Front panel
Knob
Fader VR P.C.B.

- **VU meter**
  Remove the 4 setscrews and 8 nuts.

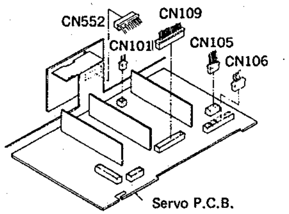

VU meter
Front panel

- **Speaker switch and monitor VR**
  Remove the 2 setscrews.
- **Monitor speaker**
  Remove the FL display P.C.B. and 4 nuts.

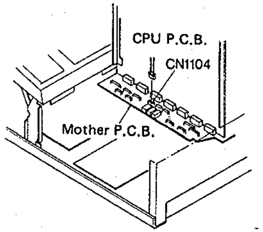

Monitor speaker
Speaker switch and monitor VR P.C.B.

5 How to remove the traverse deck

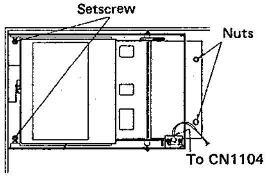
① Lift and secure the front panel or remove the front panel as in paragraph 4.
② Lift and secure the CPU and signal circuit block.
③ Remove the connectors (CN101, CN105, CN106, CN109 and CN552) of servo P.C.B.


CN552
CN109
CN101
CN105
CN106
Servo P.C.B.

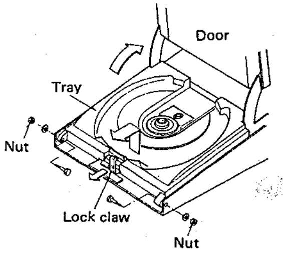
④ Remove the connector (CN1104) of mother P.C.B.


CPU P.C.B.
CN1104
Mother P.C.B.

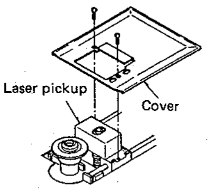
⑤ Remove the 2 setscrews and 2 nuts to take out the loading mechanism.


Setscrew
Nuts
To CN1104

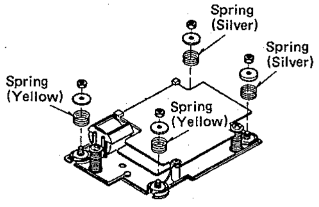
⑥ Release the claws of loading mechanism to open the door, and remove the disc tray. (2 nuts)


Door
Tray
Nut
Lock claw
Nut

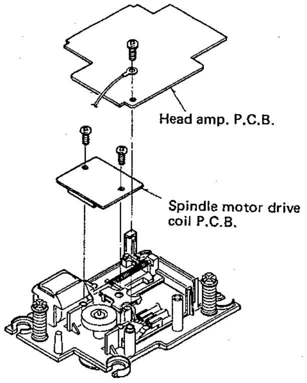
⑦ Remove the cover of laser pickup. (2 setscrews)


Laser pickup
Cover

⑧ Turn over the loading mechanism and remove the traverse deck.
Note: The front and rear springs are different.

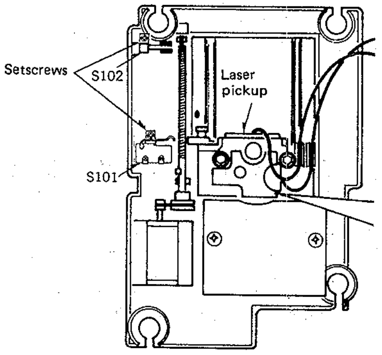

Spring (Silver)
Spring (Silver)
Spring (Yellow)
Spring (Yellow)

- **Head amp. P.C.B.**
  Remove 1 setscrew and claw.
- **Spindle motor drive coil P.C.B.**
  Remove the head amp. P.C.B. and 2 setscrews.

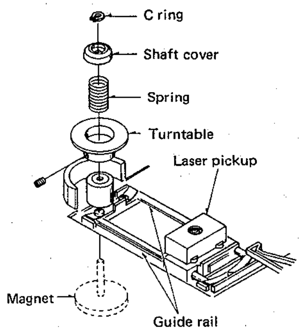

Head amp. P.C.B.
Spindle motor drive coil P.C.B.

- **Limit switch**
  Remove the head amp. P.C.B. and the setscrew.

Note: When installing the rest switch (detection of the innermost periphery of disc), it is necessary to adjust the position.


Setscrews
S102
Laser pickup
S101

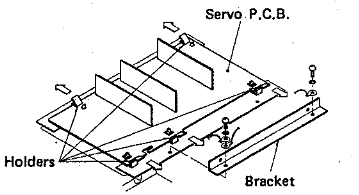
- **Turntable**
  Remove the head amp. P.C.B. and spindle motor drive coil P.C.B. Also remove the C-ring setscrew of motor shaft.


C ring
Shaft cover
Spring
Turntable
Laser pickup
Magnet
Guide rail

- **Laser pickup**
  Refer to "Replacement procedure" on page 31.

6. How to remove the servo P.C.B.

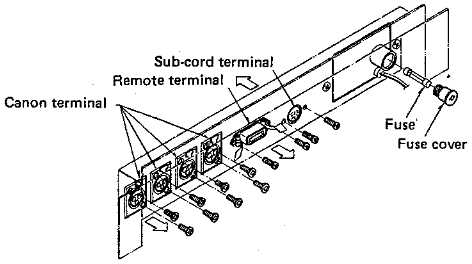
① Lift and secure the front panel of remove the panel as in paragraph 4.
② Remove each connector.
③ Remove the 2 setscrews of P.C.B. clamp.
④ Remove the P.C.B. holders. (5 portions)


Servo P.C.B.
Holders
Bracket

7. How to remove terminals (rear chassis)

① Remove the cabinet.
② Lift and secure the signal and CPU P.C.B.

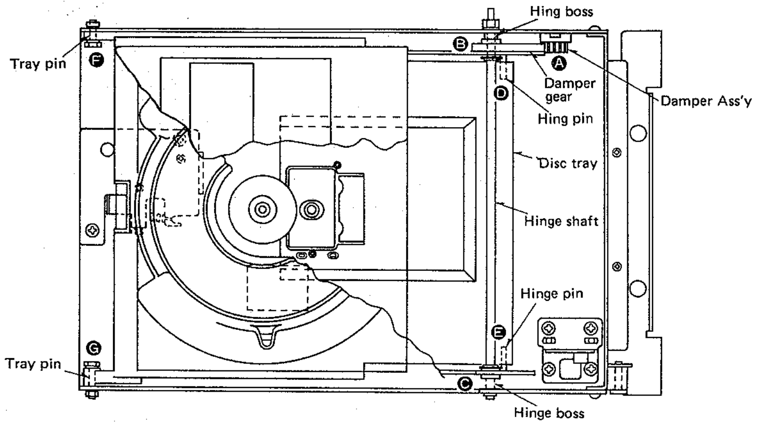
- **Canon terminal**
  Remove the 2 setscrews and pull out the terminal.
- **Remote control terminal**
  Remove the 2 setscrews and pull out the terminal.
- **Sub-cord terminal**
  Remove the 2 setscrews and detach the terminal from inside the set.
- **Fuse**
  Remove the holder cover.

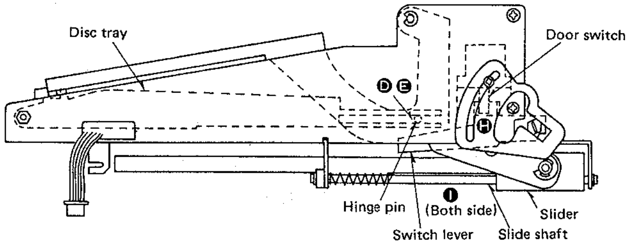

Sub-cord terminal
Remote terminal
Canon terminal
Fuse
Fuse cover

■ PORTIONS TO BE GREASED

After replacing the parts of the loading mechanism, apply the specified grease (Part No. : RZZ0L07) to the portions as follows:

Ⓐ. . . . . .Contacts of damper gear and damper assembly.
Ⓑ, Ⓒ . . . . . . .Rotating parts of hinge boss and hinge shaft.
Ⓓ, Ⓔ . . . . . . .Contacts of hinge pin and disc tray.
Ⓕ, Ⓖ . . . . . . .Rotating parts of tray pin and disc tray.
Ⓗ. . . . . .Contacts of door switch and switch lever.
Ⓘ. . . . . .Contacts of slider and slide shaft.


Hing boss
Ⓑ
Ⓐ
Tray pin
Ⓕ
Damper gear
Damper Ass'y
Ⓓ
Hing pin
Disc tray
Hinge shaft
Hinge pin
Ⓔ
Tray pin
Ⓖ
Ⓒ
Hinge boss


Disc tray
Door switch
Ⓓ Ⓔ
Ⓗ
Ⓘ
Hinge pin
(Both side)
Slider
Switch lever
Slide shaft

■ MEASUREMENT AND ADJUSTMENTS

Caution

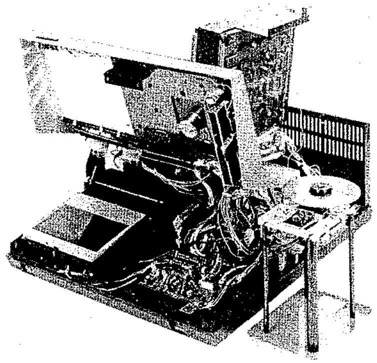
It is very dangerous to look at or touch the laser beam. (Laser radiation is inversible.) With the unit turned "on" laser radiation is emitted from the pickup lens. Be careful during adjustments in particular.

Traverse unit servicing method

(Refer to "Traverse deck checking" on page 10.)

1. Remove the traverse deck.
2. Remove the insulator rubber of traverse deck and secure the traverse deck on the traverse unit base.
3. When removing the traverse deck, insert the removed connectors.

Note: When adjusting the laser pickup after replacement, remove the head amplifier P.C.B. from the traverse deck. (The connectors should not be disconnected.)



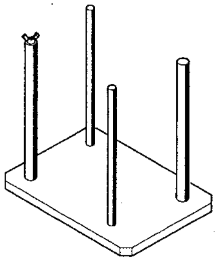
Testers and jigs for adjustments

- **Testers**

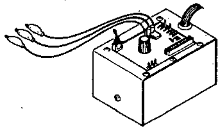
1. Two-channel oscilloscope (with trigger) of 30 MHz or over.
2. Low frequency oscillator.
3. Digital voltmeter.
4. Frequency counter.

- **Jigs**

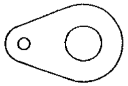
1. Traverse unit base (SZZP1016F).



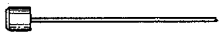
2. Servo gain adjuster (SZZP1017F).



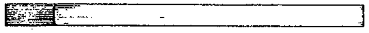
3. Short leads with clip (2 pcs.).
4. Test disc (SZZP1014F).
5. Test disc (SH–CD001).
6. Hexagonal wrenches (1.27 mm and 2 mm).
7. Gauge ket (SZZP1022F).



Rest position gauge (SZZP1019F)



Grating adjustment tool (SZZP1018F)



Feeler blade gauge (SZZP1020F)

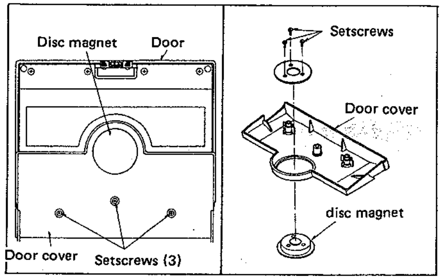
8. Disc magnet (Remove the unit).

- **How to remove the disc magnet**

① Lift the front panel and open the door.

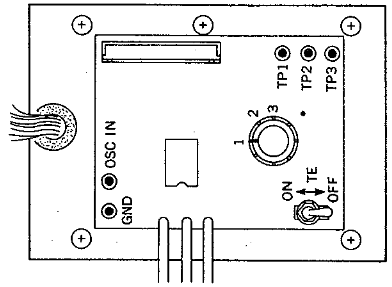
② Remove the 3 setscrews door cover.

③ Remove the 3 setscrews of disc magnet.

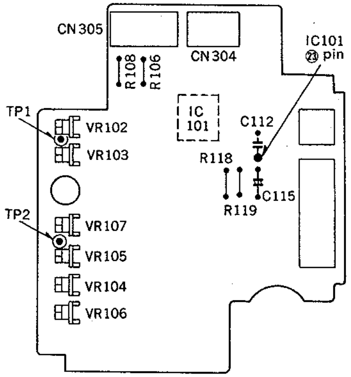

Disc magnet
Door
Door cover
Setscrews (3)
Setscrews
Door cover
disc magnet

Adjustment points

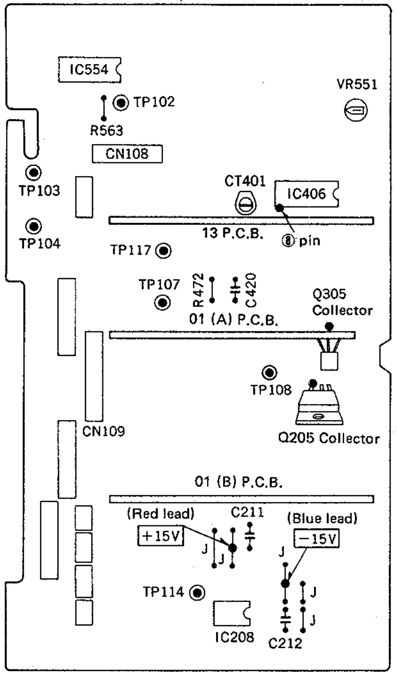
- **Servo gain adjuster**


TP1
TP2
TP3
OSC IN
GND
1
2
3
ON
TE
OFF

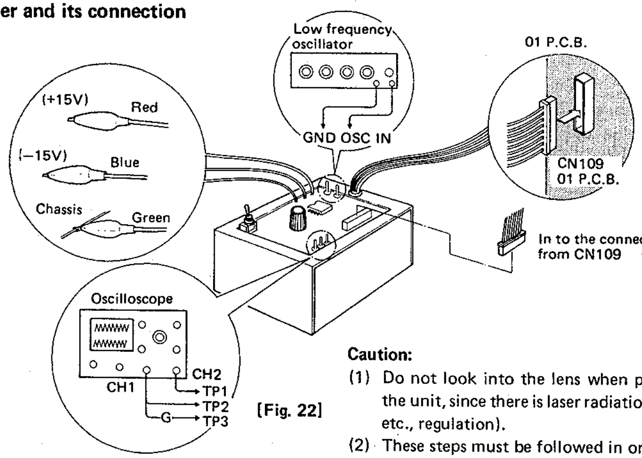
- **Head amp. P.C.B. (03)**


CN305
CN304
R108
R106
IC101
㉑ pin
TP1
VR102
VR103
IC 101
C112
R118
C115
R119
TP2
VR107
VR105
VR104
VR106

- **Servo P.C.B. (01)**


IC554
VR551
TP102
R563
CN108
TP103
CT401
IC406
TP104
13 P.C.B.
⑧ pin
TP117
TP107
R472
C420
Q305 Collector
01 (A) P.C.B.
TP108
CN109
Q205 Collector
01 (B) P.C.B.
(Red lead)
C211
(Blue lead)
+15V
−15V
J
TP114
IC208
C212

- **Servo gain adjuster and its connection**


Low frequency oscillator
GND OSC IN
01 P.C.B.
CN109
01 P.C.B.
(+15V)
Red
(−15V)
Blue
Chassis
Green
In to the connector from CN109
Oscilloscope
CH1
CH2
TP1
TP2
G
TP3

[Fig. 22]

Caution:

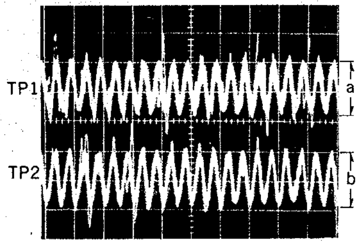
(1) Do not look into the lens when power is applied to the unit, since there is laser radiation (H.H.S./D.H.W./ etc., regulation).

(2) These steps must be followed in order.

Adjustment Procedure

1. Focus gain adjustment

1. Connect the gain adjusting jig to the set.
   - Red . . . . Jumper beside IC208 on servo module. (+15V)
   - Blue . . . . Jumper above IC208 on servo module. (−15V)
   - Green . . . . Chassis
   - Connector . . . . . . Pull out CN109 on servo module and connect it to the connector of the servo gain adjuster. And connect the connector from servo gain adjuster to CN109.
2. Adjust the low frequency oscillator to 750 Hz frequency and 150mVp-p output voltage, and connect it to TEST pin OSC IN and GND of the servo gain adjuster.
3. Connect CH1 and CH2 of oscilloscope to TP1 and TP2 of the servo gain adjuster. (TP3 is GND).
   Oscilloscope setting:
   VOLT 100mV (both channels), SWEEP 2ms, Input AC
4. Set the servo gain adjuster power SW "on" and the rotary selector switch to "1" and place the disc on turntable.
5. Turn power switch ON. When turntable beings to rotate, 750 Hz signal appears on the oscilloscope.
   Then adjust VR102 so that the waveforms of both channels are equal to each other.

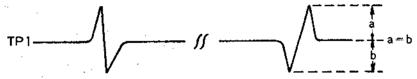


2. Focus balance adjustment

1. Set the servo gain adjuster power SW "on" and the rotary selector switch to "2" and disconnect the input from the oscillator.
2. Ground pin 23 of IC101 (AN7677) on 03 module (Head Amp.)

Note: Use a clip lead to connect to C112 (nearest to C115).

3. Pull out connector CN108 on servo module.
4. Connect the oscilloscope to TP1 on head amp. module and place the disc on turntable.
   Oscilloscope setting:
   VOLT 200mV, SWEEP 5ms, Input AC
5. Turn power switch ON. When the laser lights up, S-shaped waveform appears on the oscilloscope.
   Then adjust VR103 so that the top and bottom peak values are equal to each other.



Note: The above-mentioned S-shaped waveform will disappear in 5 or 6 sec. So, ground the pin 1 of CN109 while LD is lighted, and the waveform will last for about 20 seconds.

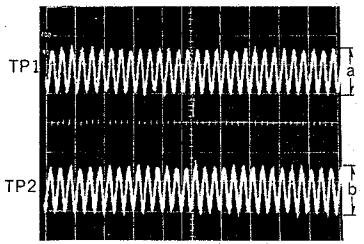
6. After the above-mentioned adjustment, remove the lead with clip and connector CN108 to restore the orginal state of the unit.

3. Focus offset adjustment

1. Set the servo gain adjuster power SW "on" and the rotary selector switch at "2".
2. Place the unit in the Eject mode. (tray open).
3. Connect a voltmeter to TP1 on 03 module. (Head amp.).
4. Turn power SW "on", and adjust VR107 so that DC voltage is 0 ± 10 mV.

4. Tracking gain adjustment

1. Set the servo gain adjuster power SW "on" and the rotary selector switch to "3".
2. Adjust the low frequency oscillator to 1.5 kHz and 150mVp-p output. And connect it to TEST pin OSC IN and GND of servo gain adjuster.
3. Connect CH1 and CH2 of oscilloscope to TEST pin TP1 and TP2 of the servo gain adjuster. (TP3 is GND)
   Oscilloscope setting: VOLT 100mV (both channels),
   SWEEP 2ms, Input AC
4. Turn power switch ON. When turntable beings to rotate, 1.5 kHz signal appears on the oscilloscope. Then adjust VR105 so that the waveform amplitudes of both channels, are equal to each other.

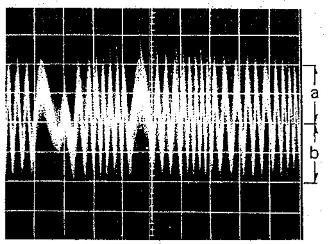


5. Tracking offset temporary adjustment

1. Set the servo gain adjuster power SW "on" and the rotary selector switch to "2", and disconnect the input from oscillator.
2. Place the unit in the Eject mode (tray open).
3. Connect a voltmeter to TP2 on 03 module. (Head amp.).
4. Turn power switch ON, and adjust VR106 so that DC voltage is 0 ± 3 mV.

6. Tracking balance adjustment

1. Set the servo gain adjuster power SW "on" and the rotary selector switch at "2".
2. Connect the oscilloscope to TP2 on 03 module and then place the disc on turntable.
   Oscilloscope setting:
   VOLT 50mV, SWEEP 5ms, Input DC
3. Turn power switch ON. When turntable begins to rotate and the tracking servo switch of servo gain adjuster is turned OFF, TE (tracking error) signal appears, on the oscilloscope.
   Then adjust VR104 so that the top and bottom peak values are equal to each other.



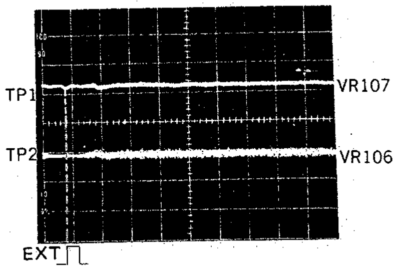
7. Tracking offset adjustment

1. Set the servo gain adjuster power SW "on" and the rotary selector switch at "2".
2. Place the unit in the Eject mode (tray open).
3. Connect a voltmeter to TP2 on 03 module. (Head amp.).
4. Turn power switch ON, and adjust VR106 so that the DC voltage is 0 ± 3 mV.

Note: After the above adjustment, remove the servo gain adjuster and connector CN109 to restore the original state of the unit.

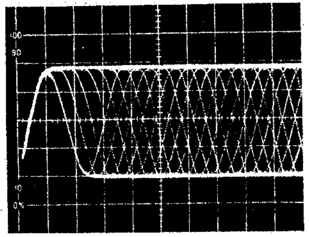
8. Offset adjustment in drop-out

1. Connect the oscilloscope to the points specified below.
   CH1 . . . . .TP1 (03 module)
   CH2 . . . . .TP2 (03 module)
   EXT . . . . .Q305 collector on servo P.C.B.
   Oscilloscope setting:
   VOLT 0.5V (both channel), SWEEP 0.5ms, Input AC,
   Trigger EXT. NORM
2. Play band 13 (0.5 mm black spot) of the test disc.
3. Watching the waveform of CH1 of the oscilloscope, adjust VR107 so that the waveform amplitude near the trigger point is minimized. If not minimized, adjust so that the waveform top and bottom are nearly symmetrical.
4. Watching the waveform of CH2 of the oscilloscope, adjust VR106 so that the waveform amplitude near the trigger point is minimized. If not minimized adjust so that the waveform top and bottom are nearly symmetrical.



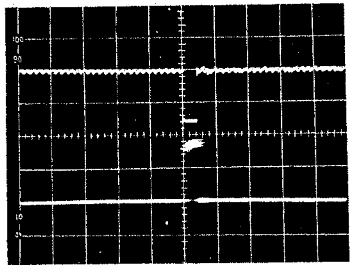
9. Best eye adjustment

1. Connect CH1 of oscilloscope to TP107 on servo P.C.B.
   Oscilloscope setting:
   VOLT 500mV, SWEEP 0.5μs, Input AC
2. Insert disc and place unit in play mode.
3. Adjust VR103 so that the eye pattern of RF signal is widest open.



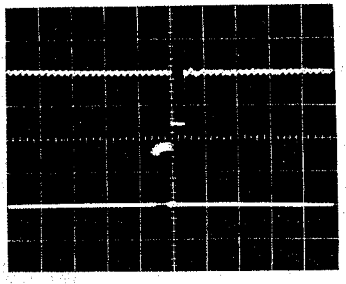
10. PLL adjustment

1. Place the unit in the Eject mode. (tray open)
2. Connect CH1 and CH2 of the oscilloscope to test points TP103 "FCLK" and TP104 "CLDCK" on servo module.
   Oscilloscope setting:
   VOLT 2V (both channels), SWEEP 20μs, Input AC, Trigger CH1 + CH2 (NORM) ⊖ slope, Mode ALT.
3. Adjust CT401 so that the timing waveform appears as shown below.



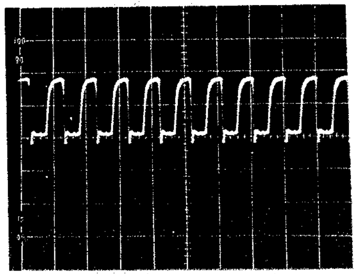
Match the centers of both waveforms.

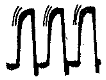
4. Place the disc on turntable and press Play button. (Play mode)
5. With the set in Play mode, ground the TP102 and TP114 on servo P.C.B.
6. With oscilloscope in same mode as in step 2, adjust VR551 so that the timing waveform appears as shown below.



Match the negative edges of both waveforms.

7. After the above-mentioned adjustments, turn power supply OFF and disconnect the short lead mentioned in step 5, then connect the oscilloscope to IC406 pin 8 on servo P.C.B.
   Oscilloscope setting:
   VOLT 2V, SWEEP 0.2μs, Input DC
8. Play band 13 (0.5 mm black spot) of the test disc.
9. Due to the black spot, the waveform of oscilloscope includes "burr" in positions as shown below. Adjust CT401 so that the "burr" is minimized.





11. Check of play operation after adjustment

1. Play an ordinary disc.
2. Specify a tune No. with the numeric keys, and check that the tune is played.
   (For example, to specify No. 2 tune, press the numeric key 2.)

- **Check of tune No., index No. and playing time (min., sec., frame) specifying function.**

1. Play an ordinary disc.
2. Specify a tune No. and playing time with the numeric keys, and check that the tune is played.

- **Check of manual research**

1. Play an ordinary disc.
2. Press the search key and turn the search dial to check the sound played back. (Both SLOW & FAST)

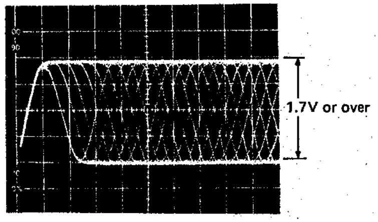
- **Check for defect**

1. Play the test disc tune 12 and check for sound skip and noise.

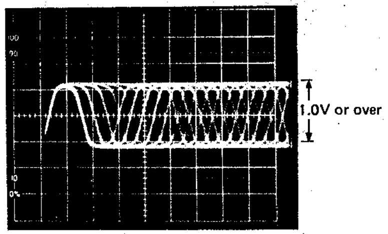
Approval Judgement of defect Laser Pick-up

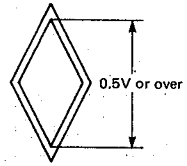
★ Before replacing the laser pickup, check the pickup according to following procedure.

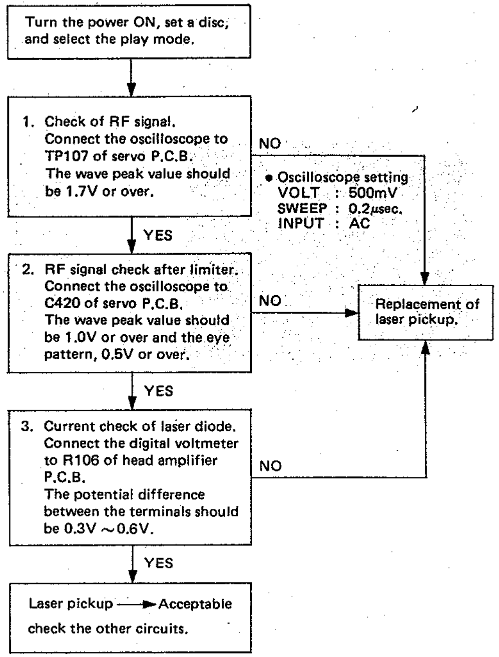
● RF signal



● RF signal after limiter







Turn the power ON, set a disc, and select the play mode.

1. Check of RF signal.
   Connect the oscilloscope to TP107 of servo P.C.B.
   The wave peak value should be 1.7V or over.

- Oscilloscope setting
  VOLT : 500mV
  SWEEP : 0.2μsec.
  INPUT : AC

2. RF signal check after limiter.
   Connect the oscilloscope to C420 of servo P.C.B.
   The wave peak value should be 1.0V or over and the eye pattern, 0.5V or over.

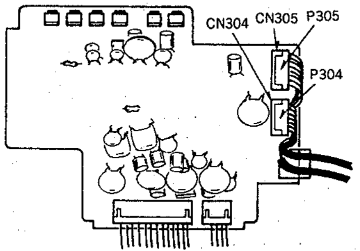
3. Current check of laser diode.
   Connect the digital voltmeter to R106 of head amplifier P.C.B.
   The potential difference between the terminals should be 0.3V ～0.6V.

Replacement of laser pickup.

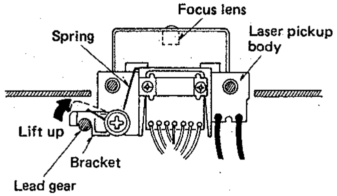
Laser pickup ——► Acceptable
check the other circuits.

Replacement Procedure

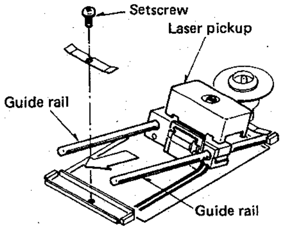
1. Remove the traverse deck from main body.
2. Remove the head amp. P.C.B., then remove CN304 and CN305.



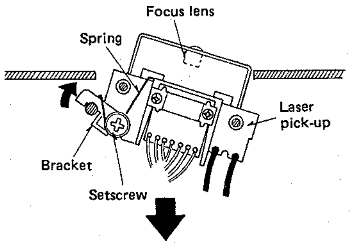
3. Lift the bracket of optical pickup, then remove the bracket from the feed screw, and shift the laser pickup toward the outer periphery (where it does not touch the switch).



4. Remove the guide rail clamp screw. Pull the 2 guide rails out of the optical pickup.



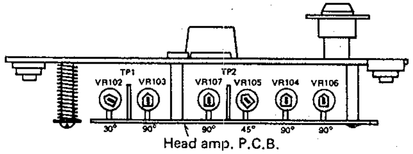
5. Lifting the bracket, remove the laser pickup from under the traverse deck.



Adjustment Procedure

1. Secure the traverse deck on the traverse unit base.
2. Connect the connectors of head amp. P.C.B.
3. Make the temporary adjsutment of each volume on the head amp. P.C.B.
4. Adjust the laser pickup according to the procedure mentioned in the following.

6. When mounting the new laser pickup, keep the following points in mind.
   (1) If connector P305 is open for long (about 20 sec.), the laser diode will break down.
   So, do not disconnect the short pin attached to P305 before P305 can be connected to CN305 of head amp. P.C.B.
   (2) Make sure that the switches S101 (rest position detection) and S102 (end position detection) are not short-circuited.
7. Remove the bracket clamp screw from the laser pickup after replacement and remove the bracket and spring, install the laser pickup.
   (See the illustration for spring setting.)
8. Install the laser pickup by reversing the removing procedure.



1. Rest position adjustment

1. Turn the power switch "on" and make sure that the laser pickup is in the reset position. (If the laser pickup is not in the rest position when power switch is turned "on", then it will automatically move the rest position.)
2. Turn the power switch "off".
3. Place the rest position gauge on the turntable, and check the laser pickup lens position.

- **In Fig. 1,** Laser pickup is deflected inside.
- **In Fig. 2,** Laser pickup is deflected outside.
- **In Fig. 3,** Laser pickup is in correct position.
  (No adjustment is needed.)

4. If laser pickup rest position is deflected as in **Fig. 1** and **2**, loosen the setscrew and turn the rest position adjustment screw. **(Fig. 4)**

- **Deflected inside (Fig. 1)**
  Turn the screw clockwise.
- **Deflected outside (Fig. 2)**
  Turn the screw counterclockwise.

5. After the adjustment, turn the power switch "on" to shift the laser pickup to the adjusted rest position. (It is automatically shifted when power switch is turned "on".)
   After that, turn the power switch "off" and check the lens position by the gauge.
6. Repeat the adjustment until the position is correct as in **Fig. 3**.
7. After adjusting the position, tighten the setscrew and again check the position.

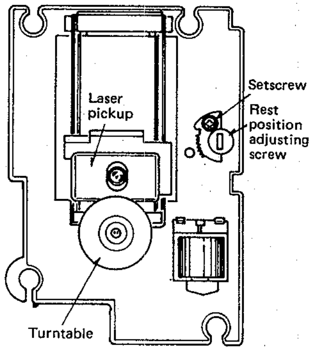


Fig. 4

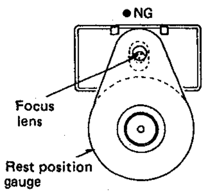

● NG
Focus lens
Rest position gauge

Fig. 1

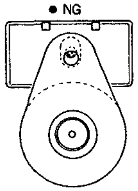


Fig. 2

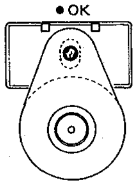


Fig. 3

2. Turntable height adjustment

1. Pull out CN105 of servo P.C.B.
2. Put a disc on the turntable and secure it with a magnet.
3. Connect the oscilloscope to TP107 of servo P.C.B. and ground.

- **Oscilloscope setting**
  VOLT : 500mV
  SWEEP : 5 ms
  INPUT : AC

4. Turn the power switch "on" to play the disc.
5. Check to see that RF signal appears as in **Fig. 5.**
6. In case of no RF signal, lightly touch the position (A) or (B) of the disc being played. **(See Fig. 6 and Fig. 7.)**

- **If waves appears with Ⓐ touched**
  then turntable is too low.
- **If waves appears with Ⓑ touched**
  then turntable is too high.

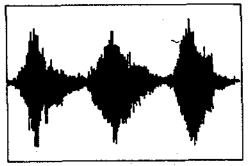


Fig. 5

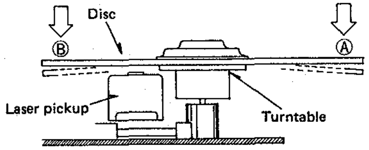

Disc
Ⓑ
Ⓐ
Laser pickup
Turntable

Fig. 6

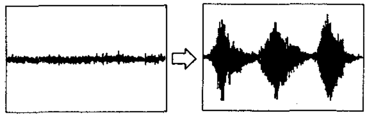


Fig. 7

7. Check the turntable height, and turn the power switch "off".
8. Pressing the turntable from above, insert the height gauge between the turntable and shaft as shown in **Fig. 8**, then put a mark on the gauge when it comes in touch.
9. When raising the turntable, loosen the hexagonal screw of the turntable and, pressing the turntable from above, insert the gauge deeper than the position marked in the preceding section, and then secure the turntable.
10. When lowering the turntable, loosen the hexagonal screw of the turntable and, pressing the turntable from above, pull out the gauge to the position less in depth than the marked position, and then secure the turntable.
11. Put a disc on the turntable and make sure that waves appear on the oscilloscope.
12. If no waves appear, repeat the adjustment in 6 through 11.
13. After the adjustment, insert CN105 in the original position.

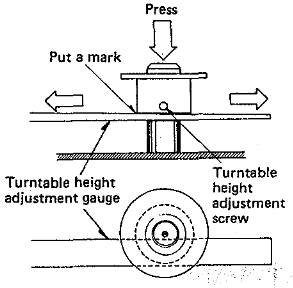

Press
Put a mark
Turntable height adjustment gauge
Turntable height adjustment screw

Fig. 8

3. Mechanical adjustment

1. Place the Test disc on the turntable with clamper magnet.
2. Connect the oscilloscope to RF pin on servo P.C.B.
3. Apply power to the unit and select the play mode.
4. Confirm that RF signal is as shown in **Fig. 9.** If it is not present, proceed to next step. If RF signal is as shown, skip step 5.
5. Adjust hexagonal screw (Use a hexagonal wrench 2 mm) to the right or left to obtain the RF signal (Visual check) as shown in **Fig. 10.**

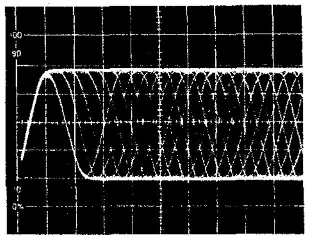


Fig. 9 RF signal

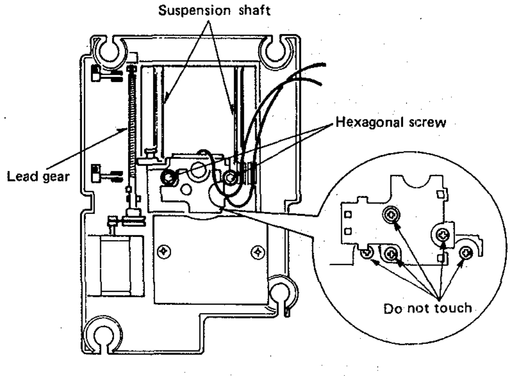

Suspension shaft
Hexagonal screw
Lead gear
Do not touch

Fig. 10. Bottom view of traverse unit

4. Grating adjustment

1. Place the Test disc on the turntable and clamper with the magnet.
2. Connect the oscilloscope as follows:
   Sweep speed. . . . . .2μs.
   CH1 . . . . .TP107 on servo P.C.B. (01)
   CH2 . . . . .R131 end of C123 on head amp. P.C.B. (03)
3. Apply power to the unit and select play mode.
4. Make sure that RF signal (CH1) and N mark (CH2) appear.
5. If N mark is not confirmed, insert the screwdriver into the grating adjustment hole of the laser pickup and turn it to find the position at which N mark appears.
6. Make the adjustment by turning the screwdriver until the voltage of N mark is 0.2Vp-p.

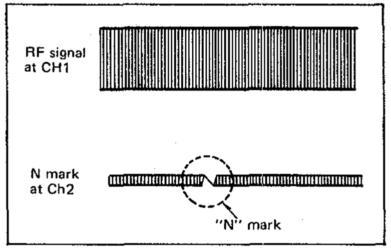


Fig. 11 RF signal and "N" mark

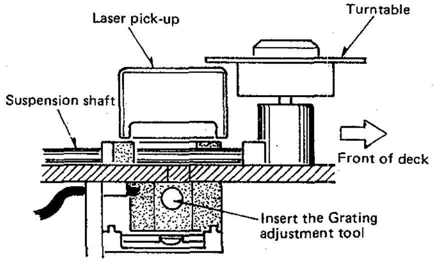
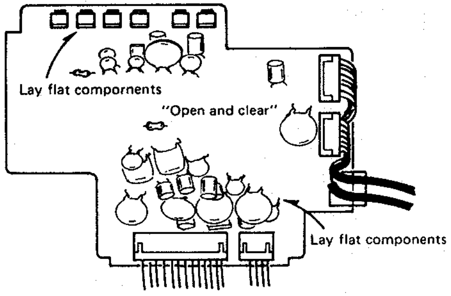

Laser pick-up
Turntable
Suspension shaft
Front of deck
Insert the Grating adjustment tool

Fig. 12. Left side view of traverse unit

5. Electrical alignment of main unit. Follow the adjustment, refer to Pages 27 ~ 30.

6. Check of the 03 module (Head amplifier module)

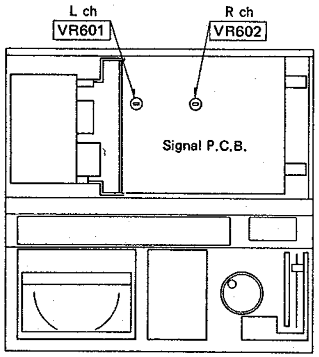
- * After adjustment dress all components to lay flat on 03 module, and reassemble on the traverse unit.
- * Once the 03 module is mounted, assure that the bottom of the pick-up does not interfere with any of the components.
  Therefore make sure that the tracks in the outer edges of the disc are accessible.



Top view of 03 (Head amp.) module

- **Adjustment of VU meter**

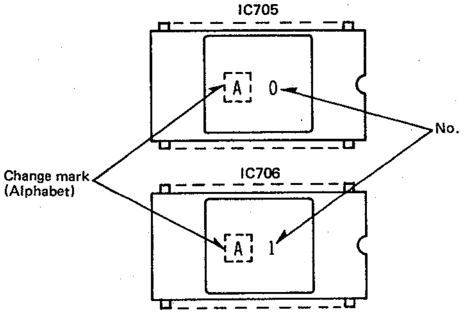
1. Remove the cabinet.
2. Play the 26th tune (1 kHz, –20 dB) of the test disc (SH–CD1001) to monitor it.
3. Then adjust VR601 (L ch.) and VR602 (R ch.) so that the meter reading is –5 dB.



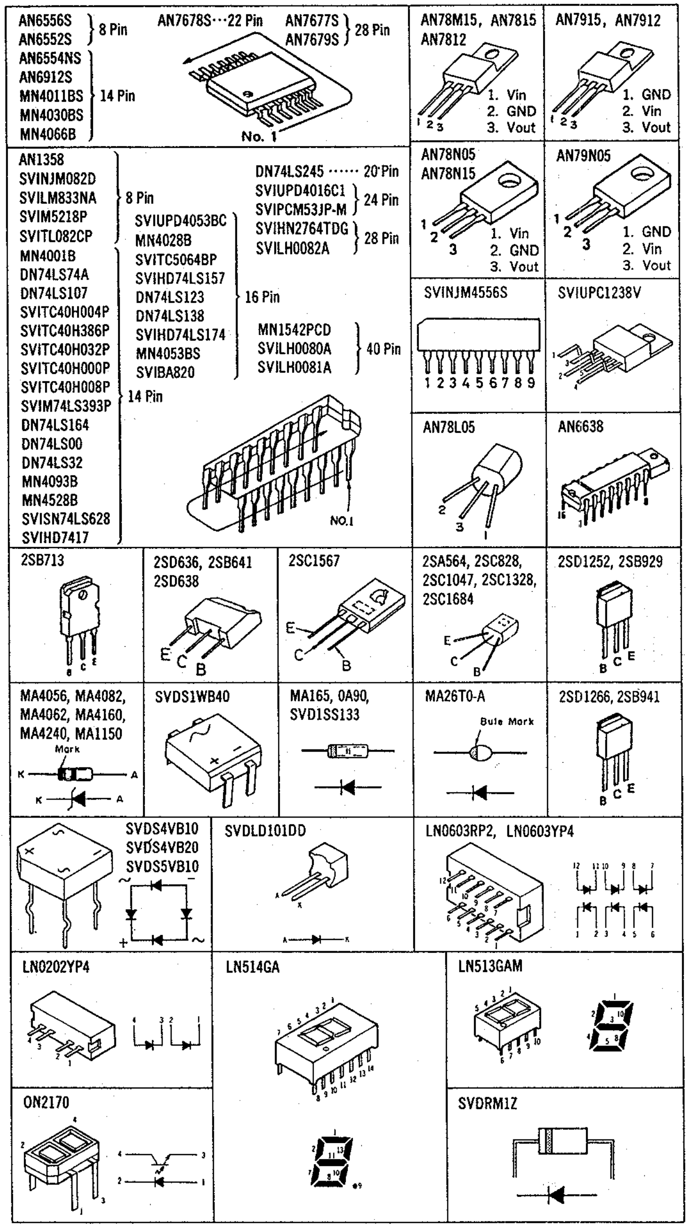
■ REPLACEMENT OF ROM (IC705, 706)

★ Since IC705 and IC706 are different in the written content, make sure that the change marks of the labels on the IC's are identical. Then fit No. 0 to IC705, and No. 1 to IC706.

★ The repair IC ROM is supplied as a pair of IC705 (No. 0) and IC706 (No. 1). So, be sure to replace them as a pair. However, they can be individually used provided that the change marks are identical.



■ TERMINAL GUIDE OF IC'S, TRANSISTORS AND DIODES



AN6556S, AN6552S } 8 Pin
AN6554NS, AN6912S, MN4011BS, MN4030BS, MN4066B } 14 Pin
AN7678S···22 Pin
AN7677S, AN7679S } 28 Pin

AN78M15, AN7815, AN7812: 1. Vin 2. GND 3. Vout
AN7915, AN7912: 1. GND 2. Vin 3. Vout

AN1358, SVINJM082D, SVILM833NA, SVIM5218P, SVITL082CP } 8 Pin
MN4001B, DN74LS74A, DN74LS107, SVITC40H004P, SVITC40H386P, SVITC40H032P, SVITC40H000P, SVITC40H008P, SVIM74LS393P, DN74LS164, DN74LS00, DN74LS32, MN4093B, MN4528B, SVISN74LS628, SVIHD7417 } 14 Pin
SVIUPD4053BC, MN4028B, SVITC5064BP, SVIHD74LS157, DN74LS123, DN74LS138, SVIHD74LS174, MN4053BS, SVIBA820 } 16 Pin
DN74LS245 ······ 20 Pin
SVIUPD4016C1, SVIPCM53JP-M } 24 Pin
SVIHN2764TDG, SVILH0082A } 28 Pin
MN1542PCD, SVILH0080A, SVILH0081A } 40 Pin

AN78N05, AN78N15: 1. Vin 2. GND 3. Vout
AN79N05: 1. GND 2. Vin 3. Vout
SVINJM4556S
SVIUPC1238V
AN78L05
AN6638
2SB713
2SD636, 2SB641, 2SD638
2SC1567
2SA564, 2SC828, 2SC1047, 2SC1328, 2SC1684
2SD1252, 2SB929
MA4056, MA4082, MA4062, MA4160, MA4240, MA1150
SVDS1WB40
MA165, 0A90, SVD1SS133
MA26T0-A
2SD1266, 2SB941
SVDS4VB10, SVDS4VB20, SVDS5VB10
SVDLD101DD
LN0603RP2, LN0603YP4
LN0202YP4
LN514GA
LN513GAM
ON2170
SVDRM1Z

■ REPLACEMENT PARTS LIST

Notes:
1. Part numbers are indicated on most mechanical parts. Please use this part number for parts order.
2. Important safety notice: Components identified by ⚠ mark have special characteristics important for safety. When replacing any of these components, use only manufacturer's specified parts.
3. Bracketed indications in Ref. No. columns specify the area. Parts without these indications can be used for all areas.
4. The "Ⓢ" mark is service standard parts and may differ from production parts.
5. Ⓚ-marked parts are used for black only, while ○-marked parts are for silver type only.
6. Part other than Ⓚ -and ○-marked are used for both black and silver type.
7. The parenthesized numbers in the columns of description stand for the quantity per set.

※ The repair IC ROM is supplied as a pair of IC705 and IC706. So, be sure to replace them as a pair.

Color	Areas
(K) (S)	[M] ...U.S.A.
(K) (S)	[MC]...Canada.
(K) (S)	[E] ...Switzerland and Scandinavia.
(K) (S)	[EK] ...United Kingdom.
(K) (S)	[XL] ...Australia.
(K) (S)	[EG] ...F.R. Germany.
(K) (S)	[EB] ...Belgium.
(K) (S)	[EH] ...Holland.
(K) (S)	[EF] ...France.
(K) (S)	[EI] ...Italy.
(K) (S)	[EC] ...Czechoslovakia.
(K) (S)	[XA] ...Southeast Asia, Oceania, Africa, Middle Near East and Central South America.
(K) (S)	[XM]...Central South America.
(K) (S)	[PA] ...East PX.
(K) (S)	[PE] ...European Military.
(K) (S)	[PC] ...European Audio Club.

INTEGRATED CIRCUIT

Ref. No.	Part No.	Description
IC2	AN78M15	Regulator
IC3	AN7915T	Regulator
IC5	AN78M15	Regulator
IC51	AN7805	Regulator
IC101	AN7677S	Head Amplifier (Focus)
IC102	AN7678S	Head Amplifier (Tracking)
IC103	AN6556S	Focus and Tracking Error Amplifier
IC104	AN1358S	Laser Power Control
IC105	AN78L05	Regulator
IC106	AN79N05	Regulator
IC201	AN6554NS	Focus Error Amp.
IC202	AN6552F	Operation Amp.
IC204	MN4011BS	NAND Gate
IC205	MN4053BS	Analog Switch
IC207	MN4001BS	NOR Gate
IC208	SVITL082CP	Operation Amp.
IC209	MN4011BS	NAND Gate
IC251	AN6554NS	Tracking Error Amp.
IC253	MN4053BS	Analog Switch
IC255	MN4030BS	OR Gate
IC301	AN6912S	Comparator
IC401	SVITC40H004P	Inverter
IC402	AN6552F	Operation Amp.
IC403	MN4053BS	Analog Switch
IC404	MN4066B	Analog Switch
IC405	DN74LS123	Monostable Multivibrater
IC406	SVITC40H386P	Exclusive OR Gate
IC407	DN74LS107	JK Flip Flop
IC408	DN74LS74AS	D Flip Flop
IC409	SVISN74LS628	Voltage Controlled Oscillator
IC501 (10 P.C.B.)	AN6638	Spindle Motor Drive
IC501 (04 P.C.B.)	MN1542PCD	Display Drive
IC502 (10 P.C.B.)	AN78M15	Regulator
IC502 (04 P.C.B.)	MN4028B	Display Drive
IC503~512	SVITC5064BP	Display Drive
IC551	AN7679S	CLV Control
IC552	SVITL082CP	Operation Amp.
IC553	MN4066BS	Analog Switch
IC554	AN6912S	Comparator
IC601	SVILH0081A	Parallel Input/Output Interface Controller
IC602	MN4528B	Multivibrater
IC603	SVIHD74LS157	Dater Selector
IC604	DN74LS164	Shift Resistor
IC605	SVIM74LS393P	4 Bit Binary Counter
IC606	DN74LS00	NAND Gate
IC607	DN74LS32	OR Gate
IC608, 609	DN74LS245	Octal Bus Transceivers
IC610~612	SVIHD74LS174	D Type Flip Flop
IC613, 614	SVIPCM53JP−M	D/A Convertor
IC615, 616	SVIUPD4053BC	Analog Switch
IC617, 618	SVILM833NA	Operation Amp.
IC621	AN7815	Regulator
IC622	AN7915	Regulator
IC623	SVIM5218P	Operation Amp.
IC671, 672	SVINJM4556S	Operation Amp.
IC673	SVIUPC1238V	Operation Amp.
IC674	AN7812	Regulator
IC675	AN7912	Regulator
IC701	SVILH0080A	CPU
IC702~704	DN74LS245	Octal Bus Transceivers
IC705, 706 (※)	SVIHN2764TDG	ROM
IC707	SVIUPD4016C1	Analog Switch
IC708	DN74LS245	Octal Bus Transceivers
IC709	SVILH0081A	Parallel Input/Output Interface Controller
IC710	SVILH0082A	Counter Timer Circuit
IC712	SVILH0082A	Counter Timer Circuit
IC713	SVILH0081A	Parallel Input/Output Interface Controller
IC721	SVITC40H004P	Inverter
IC722	DN74LS138	4−16 Decoders
IC723	SVITC40H000P	NAND Gate
IC724	SVITC40H032P	OR Gate
IC725	SVITC40H008P	AND Gate
IC726	MN4093B	NAND Schmitt Trigger
IC727	MN4528B	Multivibrater
IC728	SVITC40H008P	AND Gate
IC729	SVITC40H000P	NAND Gate
IC730	SVITC40H032P	OR Gate
IC735	DN74LS123	Multivibrater
IC736	DN74LS32	OR Gate
IC737	SVIHD7417P	Buffer
IC751	SVIBA820	LED Drive
IC801~804	SVINJM2041DD	Operation Amp.
IC805	AN78N18	Regulator
IC806	AN79N18	Regulator
IC871~880	SVIBA820	Segument Drive

MODULE

Ref. No.	Part No.	Description
LSI1	SRDP001N02A	Digital Module

TRANSISTORS

Ref. No.	Part No.	Description
Q51	2SB941	Regulator
Q52	2SB713	Ripple Filter
Q101	2SD638	Laser Power Control
Q201	2SD1266−P	Actuator Drive
Q202	2SB941	Actuator Drive
Q203	2SD1252	Actuator Drive
Q204	2SB929	Actuator Drive
Q205	2SD1266−P	Traverse Motor Drive
Q206	2SB941	Traverse Motor Drive
Q207	2SD636	Switching
Q208	2SC1328−T	Switching
Q301	2SB641	Switching
Q302~306	2SD636	Switching
Q401	2SC1047−C	RF Amplifier
Q521	2SD636	Switching
Q522	2SB641	Relay Drive
Q551	2SC1047−C	CLV Control
Q601	2SC828AR	Switching
Q602, 605	2SD636	Switching
Q603	2SC828AR	Regulator
Q701, 702	2SD636	Switching
Q703	2SC1567−Q	Switching
Q704, 705	2SD636	Switching
Q706	2SB641	Switching
Q707	2SD636	Switching
Q708, 709	2SD636	Switching
Q751~753	2SB641	Switching
Q801 (×2)	2SA720	Line Amp.
Q803, 805 (×2)	2SC1318	Line Amp.
Q807 (×2)	2SA720	Line Amp.
Q809 (×2)	2SC1847	Line Amp.
Q811 (×2)	2SA886	Line Amp.
Q813 (×2)	2SA720	Line Amp.
Q815, 817 (×2)	2SC1318	Line Amp.
Q819 (×2)	2SA720	Line Amp.
Q821 (×2)	2SC1847	Line Amp.
Q823 (×2)	2SA886	Line Amp.
Q871~873	2SB642	Switching
Q951	2SC1685−QNC	Switching
Q952	2SA722−S	Switching
Q953~956	2SC1685−QNC	Switching
Q959, 960	2SA722−S	Switching
Q961, 962	2SC1685−QNC	Switching
Q963	2SC1317	Switching
Q965, 975	2SC1685−QNC	Switching

DIODES

Ref. No.	Part No.	Description
D2 ⚠	SVDS1WB40	Rectifier
D52 ⚠	SVDS5VB10	Rectifier
D53 ⚠	SVDS4VB20	Rectifier

DIODES

Ref. No.	Part No.	Description
D54, 55 ⚠	SVDRM1Z	Rectifier
D56	MA4056	Zener, 5.6V
D57	MA4160−L	Zener, 16V
D58	MA4240	Zener, 24V
D101, 102	MA165	Switching
D201~205	MA165	Switching
D206, 208, 209	MA165	Switching
D302, 303	MA165	Switching
D304, 305	MA4056	Zener, 5.6V
D404, 405	MA165	Switching
D521~523	MA165	Switching
D554	MA4056	Zener, 5.6V
D601, 603, 605, 607 (01 P.C.B.)	MA165	Switching
D601~610 (20 P.C.B.)	MA165	Switching
D611~618	OA90−RADIO	Switching
D619~622	MA26T0−A	Switching
D623 ⚠	SVDS1WB40	Rectifier
D663, 664	MA4056	Zener, 5.6V
D671	SVDS4VB10	Rectifier
D672, 673	OA90−RADIO	Switching
D701	MA4062TA−M	Zener, 6.2V
D702~710	MA165	Switching
D711	MA1150−M	Zener, 15V
D751~755	MA165	Switching
D757~760	MA165	Switching
D762~765	MA165	Switching
D767, 768	MA165	Switching
D777~780	LN0202YP4	Start, Actual, Track & Disc Indicator
D781, 782	SVDLD101DD	Search Indicator
D783~785	LN0202YP4	Monitor Play, Standby & Online Play Indicator
D786	SVDLD101DD	Fader Start Indicator
D801, 803 (×2)	MA165	Switching
D805, 807 (×2)	MA165	Switching
D871, 872	LN514GA	Track Indicator
D873, 874	LN513GAM	Index Indicator
D875~878	LN514GA	Min. & Sec. Indicator
D879, 880	LN513GAM	Frame Indicator
D881	LN0603RP2	Error Indicator
D882, 883	LN0603YP4	Online & Cue Indicator
D883	SVDLD101DD	Empha Indicator
D885~887	SVDLD101DD	Cursor Indicator
D889, 890	SVDLD101DD	Cursor Indicator
D911	SVDLD101DD	Open Indicator
D951	SVDS1WB40	Rectifier
D955~958	MA165	Switching
D959, 960	MA165	Switching

VARIABLE RESISTORS

Ref. No.	Part No.	Description
VR102	EVN32CA00B14	Forcus Gain Adj., 10kΩ (B)
VR103~105	EVN32CA00B53	Forcus Balance, Tracking Balance & Tracking Gain Adj., 5kΩ (B)
VR106, 107	EVN32CA00B14	Tracking Offset & Force Offset Adj., 10kΩ (B)
VR551	EVN38GA00B24	11T Adj., 20kΩ (B)
VR601, 602	EVM38GA00B53	VU Meter Adj., 5kΩ (B)
VR801	EVBJ26P02Y14	Fader
VR911	EWKH2A066A14	Monitor Level

VARIABLE CAPACITOR

Ref. No.	Part No.	Description
CT401	ECV1ZW25X53T	VOC Adj.

COIL

Ref. No.	Part No.	Description
L51	ELF18D112	Line Filter

FILTERS

Ref. No.	Part No.	Description
LPF601, 602	SVIAL012	Low Pass Filter

OSCILLATORS

Ref. No.	Part No.	Description
X501	EF0A3R8M01	Ceramic, 3.8MHz
X601	SVQNR8643	Crystal, 8.643MHz
X701	EF0A4R0M01A	Ceramic, 4MHz

COMPONENT COMBINATIONS

Ref. No.	Part No.	Description
R501~506	EXBP89104K	100kΩ×9
R508	EXBP84102K	1kΩ×4
R871, 872	EXBM16V181J	180Ω×6
R873, 874	EXBM16V221J	220Ω×6
R875~878	EXBM16V181J	180Ω×6
R879, 880	EXBM16V221J	220Ω×6

RELAYS

Ref. No.	Part No.	Description
RLY521~523	SFDYG5A237P	Cue, Online, Standby Control
RLY951~957	SRDYG2V205	Muting

FLUORESCENT DISPLAY TUBE

Ref. No.	Part No.	Description
FL501	SRDQBG140Z	Display

HALL ELEMENTS

Ref. No.	Part No.	Description
H501, 502	OH−001	Position Det.

SENSORS

Ref. No.	Part No.	Description
PC931, 932	ON2170	Serch Det.
PC933	ON2170	Disc Det.

SWITCHES

Ref. No.	Part No.	Description
S1 [M, MC] ⚠	ESB90604T	Power
S1 [Other areas] ⚠	ESB90702V	Power
S2 Except for [M, MC] ⚠	ESE37200	Voltage Selector
S101	SRDSSS01GL13	Rest Det.
S102	SRDSBSW−180	End Det.
S701	SFDS−A6MS−4	Mode Selector
S751~782	EVQQS405K	Start, Cursor, No, Stop, Actual, Search, Standby, Disc Switch
S786	ESB6471	Fader Start
S787	SRDSSS01GL2	Fader Switch
S801	SRDSSSA082	Gain Selector
S901	ESB6258	Door Det.
S911	ESB6473	Open
S921	ESB6471	Speaker Switch

FUSES

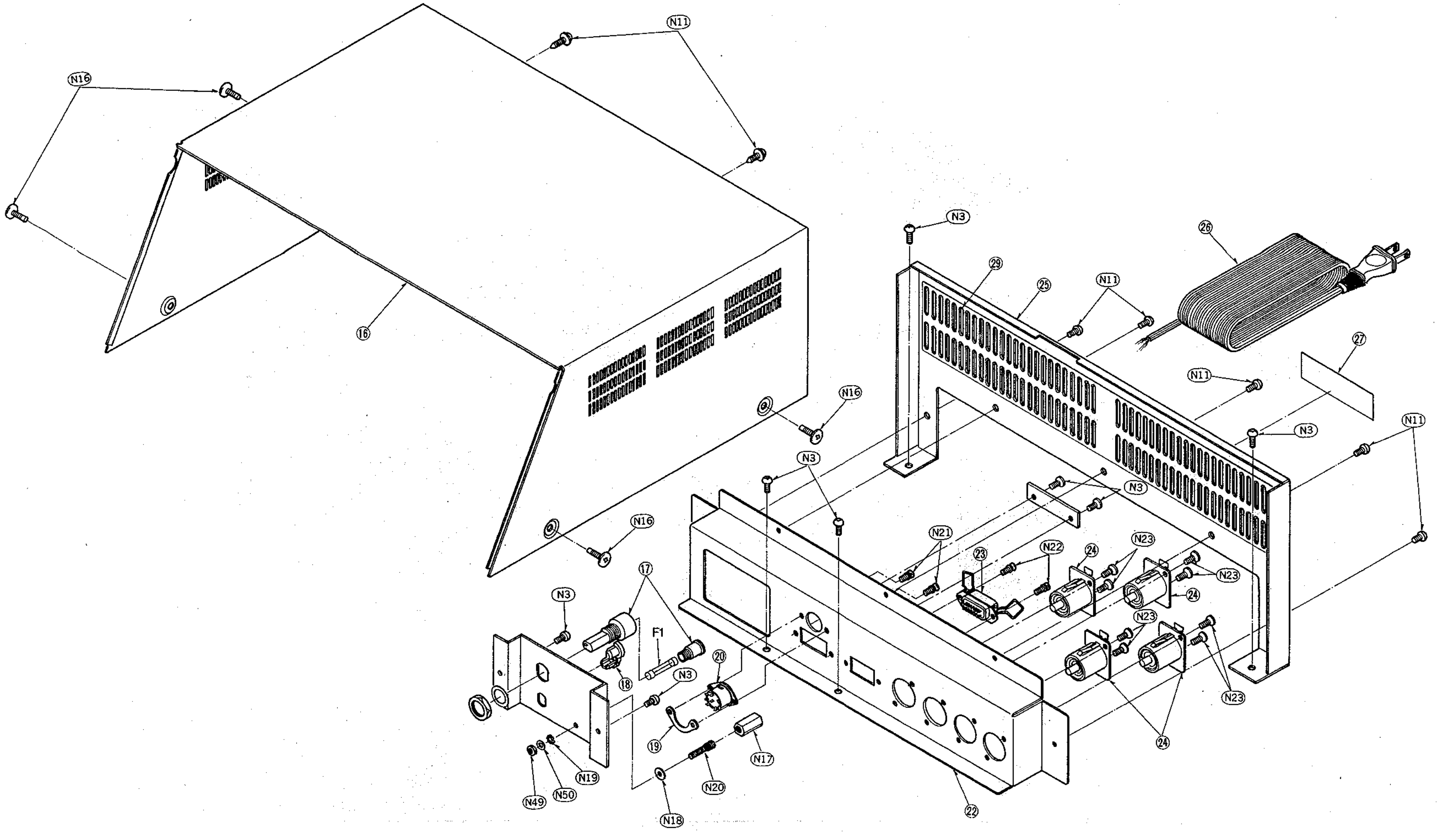
Ref. No.	Part No.	Description
F1 [M, MC] ⚠	XBA1F16NU100	125V, 1.6A
F1 [Other areas] ⚠	XBA2C05TR0	250V, T500mA
F51 [M, MC] only ⚠	XBA2F08NU100	250V, 800mA
F81 Except for [M, MC] ⚠	XBA2C10TR0	250V, T1A

POWER TRANSFORMERS

Ref. No.	Part No.	Description
T1 [M, MC] ⚠	SRDZ050M02A	Power Transformer
T1 [Other areas] ⚠	SRDZ050S02A	Power Transformer
T2 [M, MC] ⚠	SRDZ050M01A	Power Transformer
T2 [Other areas] ⚠	SRDZ050S01A	Power Transformer

CABINET and CHASSIS PARTS

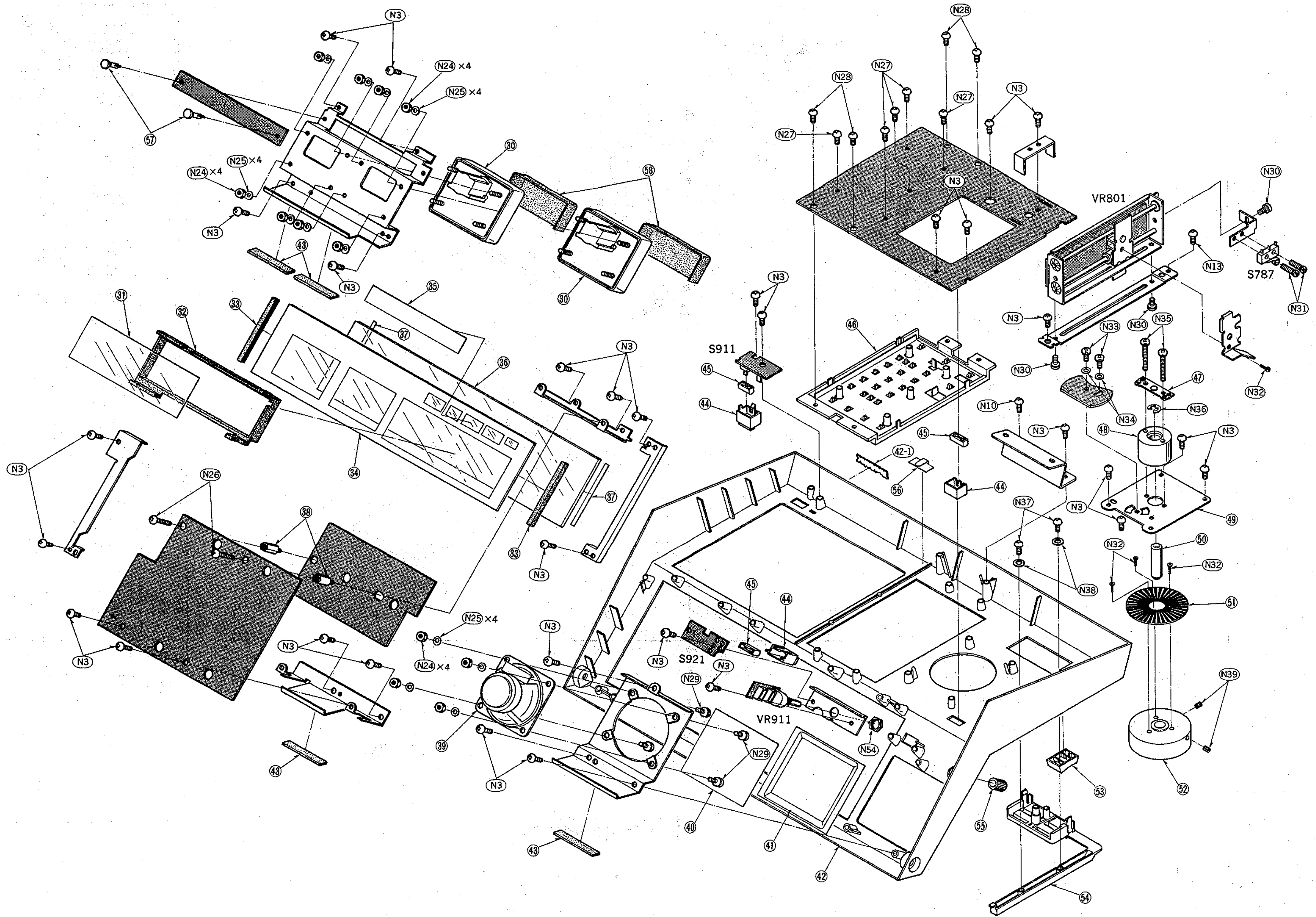
Ref. No.	Part No.	Description
1	SSKT100N04	Button, Power (1)
2	SRUP050N20	Ornament Plate, Power Switch (1)
3	SSUM100N08	Guide, Power Switch (1)
4	SRUP050N21	Ornament Plate, Headphonen Jack (1)
5	SSDJ3315020	Jack, Headphone (1)
6	SRDC050N01	Sheet, Regulator Transistor (1)
7	SFDBC07−01	Bushing (1)
8	SRDC050N02	Sheet (1)
9	SFUZD33−01E	Latch (1)
10	SRUM050N08	Spacer (4)
11	SRXB050N05	Adjustment Boss (2)
12	SHR401−1	Latch, P.C.B. (12)
13	SRX0050N01	Spacer (2)
14	SRAU050N01	Bottom Base (1)
15	SRUZ050N04	Spacer (1)
16 ○	SRUP050N31E	Cabinet (Silver) (1)
16 Ⓚ	SRUP050N81E	Cabinet (Black) (1)
17 [M, MC] ⚠	QTF1046	Fuse Case (1)
17 [Other areas] ⚠	SJFA4	Fuse Case (1)
18 [EK, PA, PE, PC]	SFSR5N−4	Bushing, AC Cord (1)
18 [Other areas]	SFSR4N−4	Bushing, AC Cord (1)
19	SSUP101N10	Bracket, DIN Socket (1)
20	SRDJTCS2280	Socket, Sub-Cord (1)
22	SRUP050N37	Panel, Terminal (1)
23	SFDJ57−40140	Socket, Remote (1)
24	XLR−3−12	Socket, Canon Type (4)
25	SRUP050N25	Rear Panel (1)
26 [M, MC] ⚠	SJA150	AC Cord (1)
26 [EK] ⚠	SJA139	AC Cord (1)
26 [XL] ⚠	SJAF−23	AC Cord (1)
26 [PA, PE, PC] ⚠	YWKP7A2R5	AC Cord (1)
26 [Other areas] ⚠	SJA137	AC Cord (1)
27 [M]	SRNN050M11	Name Plate (1)
27 [MC]	SRNN050C11	Name Plate (1)
27 [E, EC]	SRNN050S11	Name Plate (1)
27 [EK, XL]	SRNN050G11	Name Plate (1)
27 [XA, XM]	SRNN050X11	Name Plate (1)
27 [PA, PE, PC]	SRNN050P12	Name Plate (1)
27 [Other areas]	SRNN050R11	Name Plate (1)
28	SRUP050N59	Cover (1)
29	SRUZ050N08	Sheet (1)



Ref. No.	Part No.	Description
FRONT PANEL PARTS		
30	SRDMKL250B77	Level Meter (2)
31	SRUZ050N03	Filter, FL Meter (1)
32	SRGZ050N03	Guide, FL (1)
33	SRGZ050N10	Spacer, Ornament Plate (2)
34	SRUM050N07	Ornament Plate (1)
35	SRUZ050N02	Filter (1)
36	SRKZ050N01	Grass Plate (1)
37	SRGZ050N02	Spacer, Glass (2)
38	SRXJ050N02	Spacer (2)
39	EAS−8P98SC	Monitor Speaker (1)
40	SRUZ050N01	Sheet, Speaker (1)
41	SRUP050N09	Net, Speaker (1)
42 ○	SRAC050N01E	Front Panel (Silver) (1)
42 Ⓚ	SRAC050N51E	Front Panel (Black) (1)
42-1	SFKBM03N02	Badge (1)
43	SRGZ050N12	Spacer (4)
44	SRUM050N01	Guide, Button (3)

Ref. No.	Part No.	Description
FRONT PANEL PARTS		
45	SRKT050N13	Button, Open, Speaker, Fader on·off (3)
46 ○	SRUM050N02A	Operation Button Ass'y (Silver) (1)
46 Ⓚ	SRUM050N52A	Operation Button Ass'y (Black) (1)
47	SRMZ050N01E	Plate, Search (1)
48	SRXB050N01	Boss (1)
49	SRUP050N01	Base, Search Dial (1)
50	SRXJ050N01	Shaft (1)
51	SRUP050N03	FG Plate (1)
52	SRKT050N15	Search Dial (1)
53	SRKT050N14	Knob, Fader (1)
54 ○	SRUM050N03A	Button Guard (Silver) (1)
54 Ⓚ	SRUM050N53A	Button Guard (Black) (1)
55	SRKT050N16	Knob, Monitor Level (1)
56	SSUZ100N03	Lead Clamper (1)
57	SHR401−1	Latch (2)
58	SRGZ050N07	Cover, Lever Meter (1)
SCREWS, WASHERS and NUTS		
N1 ○	SRXG050N03	Screw (Silver) (2)
N1 Ⓚ	SRXG050N30	Screw (Black) (2)
N2 Ⓢ	XTN3+8BFZ	Screw, ⊕3×8 (8)
N3 Ⓢ	XTV3+8BFZ	Screw, ⊕3×8 (100)
N4	XYN3+C6FZS	Screw, ⊕3×6 (2)
N5	SRXJ050N15	Screw (2)
N6 Ⓢ	XUC5FT	E-Ring, φ5 (2)
N7	XNS12	Nut, φ12 (1)
N8	XYN3+C12S	Screw, ⊕3×12 (1)
N9	XTN3+8B	Screw, ⊕3×8 (1)
N10	XYE3+EJ8	Screw, ⊕3×8 (1)
N11	XTW3+8TFZ	Screw, ⊕3×8 (8)
N12	XYN3+C8FZS	Screw, ⊕3×8 (2)
N13	SFXGC07−01	Screw (1)
N14	SRXG050N01	Screw (1)
N15 Ⓢ	XUC3FT	E-Ring, φ3 (14)
N16 ○	SRXG007N10	Screw (Silver) (4)
N16 Ⓚ	SRXG007N51	Screw (Black) (4)
N17	SMEA404	Nut (1)
N18	SNTA401	Washer (1)
N19 Ⓢ	XWC4B	Washer, φ4 (1)
N20	SNEA204−2S	Screw (1)
N21	XYN26+C8FZ	Screw, ⊕2.6×8 (2)
N22	XYN26+C8FC	Screw, ⊕2.6×8 (2)
N23	XSC3+8FCS	Screw, ⊕3×8 (8)
N24 Ⓢ	XNG3ES	Nut, φ3 (18)
N25 Ⓢ	XWA3B	Washer, φ3 (17)
N26	XYN3+F8FZ	Screw, ⊕3×8 (2)
N27 Ⓢ	XTV3+10BFN	Screw, ⊕3×10 (5)
N28 Ⓢ	XTV3+10BFZ	Screw, ⊕3×10 (4)
N29	XYN3+8FZS	Screw, ⊕3×8 (4)
N30	XYN3+C6FZS	Screw, ⊕3×6 (2)
N31	XYN23+C10BN	Screw, ⊕2.3×10 (3)
N32	SRXG010N34	Screw (4)
N33	XYN3+C5FZS	Screw, ⊕3×5 (2)
N34 Ⓢ	XWE3	Washer, φ3 (2)
N35	XTN3+25JFZ	Screw, ⊕3×25 (2)
N36 Ⓢ	XUC4FT	E-Ring, φ4 (1)
N37	XTV3+6GFZ	Screw, ⊕3×6 (2)
N38	SFXW120−01	Washer (2)
N39	XXE3D5FZ−S	Screw (2)
N40	XYN2+C4FZ	Screw, ⊕2×4 (9)
N41	XYN3+C4FZS	Screw, ⊕3×4 (2)
N42	SRXW050N03	Washer (2)
N43 Ⓢ	XTV3+6BFZ	Screw, ⊕3×6 (5)
N44 Ⓢ	XWE2	Washer, φ2 (2)
N45	SRXW050N05	Washer (2)
N46 Ⓢ	XSN2+8BV	Screw, ⊕2×8 (2)
N47 Ⓢ	XTN3+16BFZ	Screw, ⊕3×16 (3)
N48 Ⓢ	XTN4+8BFZ	Screw, ⊕4×8 (2)
N49 Ⓢ	XNG4ES	Nut, φ4 (2)
N50 Ⓢ	XWA4B	Washer, φ4 (2)
N51	SRUP050N02	Washer (2)
N52	SRXG050N02	Screw (2)
N53 Ⓢ	XWA5B	Washer, φ5 (2)
N54	XNS8FZ	Nut, φ8 (1)
N56	SRXN050N01	Nut (1)
N57 Ⓢ	XNS6	Nut (2)
N58	SRXJ050N19	Nut (4)

- **Front panel**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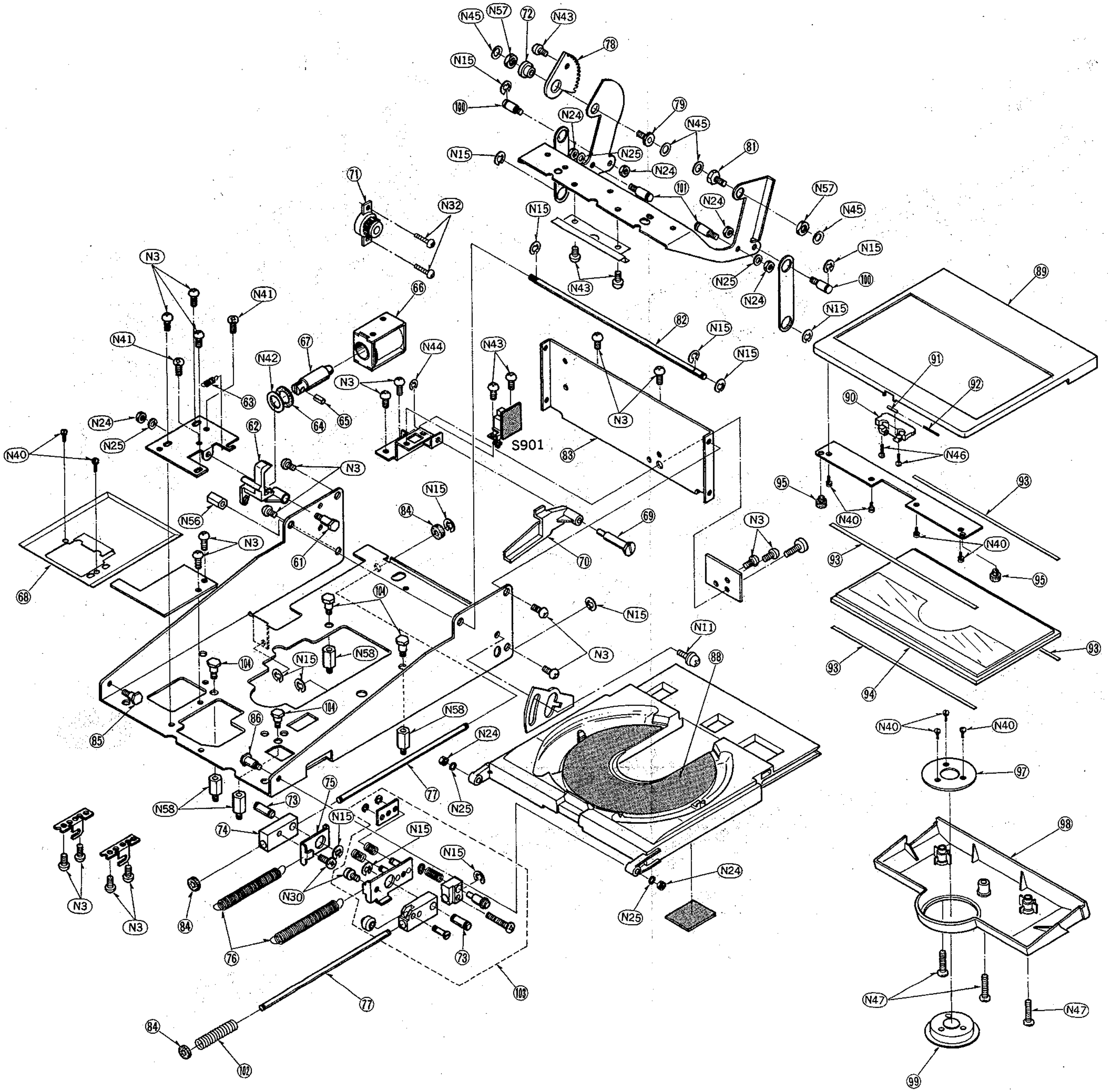
- **Loading mechanism**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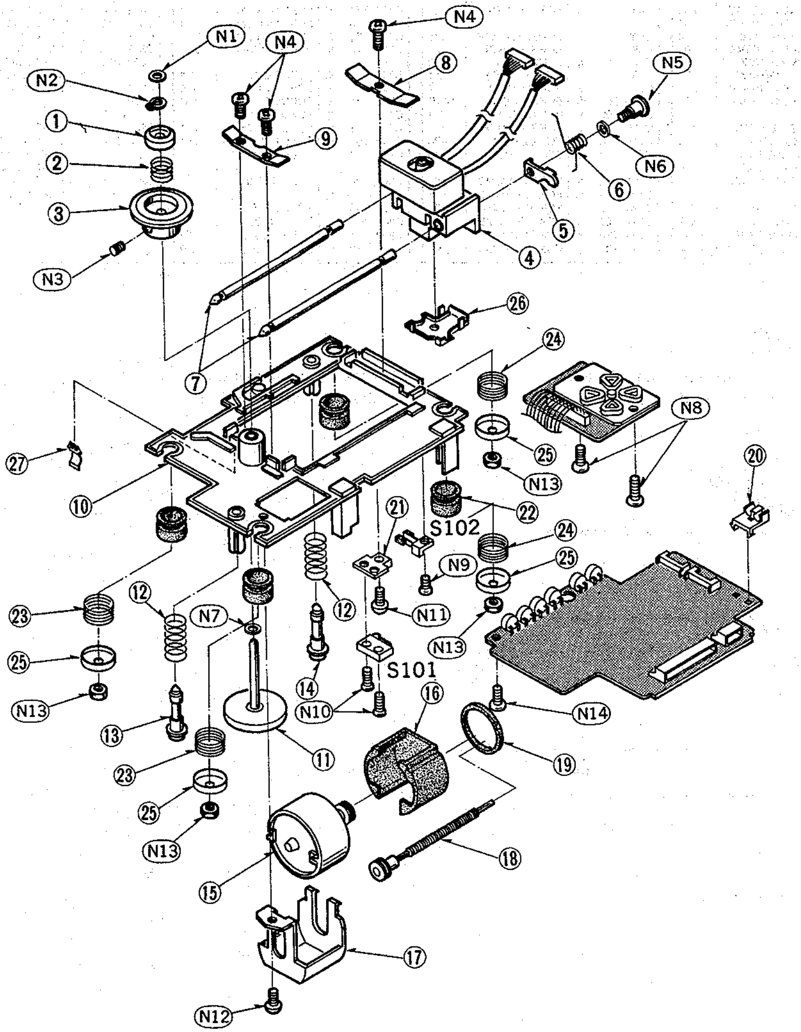
Ref. No.	Part No.	Description
LOADING MECHANISM PARTS		
61	SRXJ050N04	Shaft, Lock Claw (1)
62	SRUM050N09	Lock, Claw (1)
63	SRQH050N02	Spring (1)
64	SRGC050N01	Cushion (1)
65	SRXJ050N05	Pin (1)
66	SFDZ–SD1AC10	Plunger Ass'y (1)
68	SRUP050N49	Plate, Optical Pick-Up (1)
69	SRXJ050N21	Shaft, Switch Lever (1)
70	SRUM050N12	Lever, Disc Det. Switch (1)
71	SRUZ050N06A	Damper Ass'y (1)
72	SRXB050N07	Collar (1)
73	SRXJ050N18	Shaft, Slider (2)
74	SRUM050N10	Slider (2)
75	SRUP050N42	Bracket, Spring (2)
76	SRQH050N01	Spring (2)
77	SRXJ050N13	Shaft (2)
78	SRUG050N01	Gear, Damper (1)
79	SRXB050N06	Boss (B) (1)
81	SRXB050N02	Boss (A) (1)
82	SRXJ050N11	Shaft (1)
84	SRGC05N02	Cushion (3)
85	SRXJ050N10	Pin, Tray (1)
86	SRXJ050N09	Pin, Tray (1)
87	SRUM050N06	Tray (1)
88	SRGZ050N01	Sheet (1)
89 ○	SRAZ050N01	Panel (Silver) (1)
89 Ⓚ	SRAZ050N51	Panel (Black) (1)
90	SRUM050N11	Lock Base (1)
91	SRXB050N04	Collar (1)
92	SRXJ050N17	Pin, Lock (1)
93	SRGZ050N04	Spacer (4)
94	SRKZ050N02	Grass (1)
95	SRGC050N14	Cushiton Rubber (2)
97	SRUP050N46	Clamper, Disc (1)
98	SRUM050N05R	Cover (1)
99	SRXJ050N08E	Disc Clamper (1)
100	SRXJ050N07	Shaft (2)
101	SRXJ050N06	Shaft (2)
102	SRQA050N04	Spring (1)
103	SRUZ050N10E	Slider (1)
104	SRXJ050N16	Shaft (4)
PACKING PARTS		
P1 ○ [MC, EF]	SRHP050C11	Carton Box (Silver) (1)
P1 ○ [Other areas]	SRHP050M11	Carton Box (Silver) (1)
P1 Ⓚ [MC, EF]	SRHP050C61	Carton Box (Black) (1)
P1 Ⓚ [Other areas]	SRHP050M61	Carton Box (Black) (1)
P2	SRHD050N01	Pad, Top (1)
P3	SRHD050N02	Pad, Bottom (1)
P4	SRHD050N03	Pad, Loading Panel (2)
P5	SRHZ015N01	Polyethlene Bag, Unit (1)
P6	SFYF23A35	Polyethlene Bag, Instruction Book (1)
ACCESSORIES		
A1	SRNU050M11	Instruction Book (1)
A2 [XA, ⚠ XM] only	SFDKI19118	2 Pin Plug (1)
A3 [PA, ⚠ PE, PC] only	QJP0603S	Plug (1)

- **Travers deck**



Ref. No.	Part No.	Description
TRAVERSE DECK PARTS		
1	SRTE007N03	Holder, Turntable (1)
2	SRQA010N04	Spring, Turntable (1)
3	SRTE007N01E	Turntable Ass'y (1)
4	SRLP007N04A	Optical Pick-Up Ass'y (1)
5	SRUM007N22	Bracket (1)
6	SRQS007N01	Spring (1)
7	SRXJ007N01	Shaft (2)
8	SRUP007N09	Bracket (1)
9	SRUP007N08	Bracket (1)
10	SRUK050N02E	Optical Pick-Up Deck Base (1)
11	SRTM007N01A	Magnet Ass'y (1)
12	SRQA007N03	Spring (2)
13	SRXG007N07	Shaft (B) (1)
14	SRXG007N06	Shaft (A) (1)
15	SRMH001N01R	Motor Ass'y (1)
16	SRGC007N01	Cushion Rubber (1)
17	SRUM007N19	Holder (1)
18	SRXG007N01E	Pulley Screw (1)
19	SRGB007N03	Belt (1)
20	SRLH007N08	Clamper (1)
21	SRUP050N48	Bracket (1)
22	SRGC007N02	Cushion Rubber (4)
23	SRQA007N01	Spring (A) (2)
24	SRQA007N02	Spring (B) (2)
25	SRUP007N12	Holder, Spring (4)
26	SRLC007N03	Cover, Optical Pick-Up (1)
27	SRQP007N01	Spring (1)

Ref. No.	Part No.	Description
SCREWS, WASHERS and NUTS		
N1	SRXW050N01	Washer (1)
N2	GTW−3	C-Ring, φ3 (1)
N3	XXE26D5FZ	Screw (1)
N4	XYN3+6S	Screw, ⊕3×6 (3)
N5	SRXG007N02	Screw (1)
N6	XWE4A8BW	Washer, φ4 (1)
N7	SRXW007N02	Washer (1)
N8 Ⓢ	XTN3+8B	Screw, ⊕3×8 (2)
N9 Ⓢ	XTN2+6B	Screw, ⊕2×6 (1)
N10	XYN23+C10BN	Screw, ⊕2.3×10 (2)
N11	XTN2+4JFZ	Screw, ⊕2×4 (1)
N12	XTW3+6T	Screw, ⊕3×6 (1)
N13	XNG26H	Nut, φ2.6 (4)
N14	SRXG007N11	Screw (1)

■ RESISTORS AND CAPACITORS

Notes:

1. Part numbers are indicated on most mechanical parts. Please use this part number for parts orders.
2. Important safety notice: Components identified by ⚠ mark have special characteristics important for safety. When replacing any of these components use only manufacturer's specified parts.
3. The "Ⓢ" mark is service standard parts and may differ from production parts.
4. The unit of resistance is Ω(ohm). K = 1000Ω , M = 1000kΩ
5. The unit of capacitance is μF (microfarad) P = 10^{-6} μF

Numbering System of Resistor

Example

ERD	25	F	J	101
Type	Wattage	Shape	Tolerance	Value
ERX	2	AN	J	2R2
Type	Wattage	Shape	Tolerance	Value

Resistor Type	Wattage	Tolerance
ERD : Carbon	25 : 1/4W	G : ± 2%
ERX : Metal Film	1 : 1W	J : ± 5%
ERQ : Fuse	S2 : 1/4W	K : ± 10%

ERDS2FCJ□□□ ——► Fuse type carbon (1/4W)
ERDS2TJ□□□ ——► Small type carbon (1/4W)
EROS2TKF□□□ ——► Small type metal film (1/4W)

Numbering System of Capacitor

Example

ECKD	1H	102	Z	F
Type	Voltage	Value	Tolerance	Peculiarity
ECEA	50	M	R47	R
Type	Voltage	Reculiarity use	Value	Special use

Capacitor Type	Voltage	Tolerance
ECEA : Electrolytic	OJ : 6.3V	C : ± 0.25pF
ECEA. . . N : Non Polar Electrolytic	1A : 10V	G : ± 2%
ECCD : Ceramic	1C : 16V	J : ± 5%
ECFR : Ceramic	1E : 25V	K : ± 10%
ECKD : Ceramic	25 : 25V	M : ± 20%
ECQM : Polyester	1V : 35V	P : +100%, −0%
ECQP : Polypropylene	1H : 50V	Z : +80%, −20%
ECES : Electrolytic	50 : 50V	
	2A : 100V	
	AL : 125V AC	
	MY : 125VAC	
	HS : 400V AC	
	KC : 400V AC	
	ECQP1 : 100V	

● RESISTORS

Ref. No.	Part No.	Value
R53 Ⓢ ⚠	ERD25FJ100	10
R54 Ⓢ ⚠	ERD25FJ272	2.7K
R55	ERD25TJ223	22K
R56, 57 Ⓢ ⚠	ERD25FJ330	33
R58 Ⓢ ⚠	ERD25FJ680	68
R60 Ⓢ ⚠	ERD25FJ330	33
R61 Ⓢ ⚠	ERD25FJ2R2	2.2
R62, 63 ⚠	ERD2FCJ6R8	6.8
R101	ERDS2TJ103	10K
R102	ERDS2TJ682	6.8K
R103	ERDS2TJ472	4.7K
R104	ERDS2TJ103	10K
R105	ERDS2TJ102	1K
R106	ERDS2TJ220	22
R107	ERDS2TJ474	470K
R108	ERDS2TJ220	22
R109, 110	ERDS2TJ473	47K
R111	ERDS2TJ821	820
R112	ERDS2TJ391	390
R114	ERDS2TJ682	6.8K
R115 Ⓢ	ERD25TJ221	220
R116	ERDS2TJ391	390
R117	ERDS2TJ682	6.8K
R118	ERDS2TJ473	47K
R119	ERDS2TJ392	3.9K
R120	ERDS2TJ102	1K
R121	ERDS2TJ472	4.7K
R122	ERDS2TJ184	180K
R123	ERDS2TJ102	1K
R124	ERDS2TJ183	18K
R125	ERDS2TJ103	10K
R126, 127	ERDS2TJ822	8.2K
R128	ERDS2TJ152	1.5K
R129	ERDS2TJ101	100
R132	ERDS2TJ392	3.9K
R133	ERDS2TJ222	2.2K
R134	ERDS2TJ183	18K
R135	ERDS2TJ152	1.5K
R136	ERDS2TJ183	18K
R137	ERDS2TJ822	8.2K
R140	ERDS2TJ472	4.7K
R141	ERDS2TJ101	100
R142	ERDS2TJ102	1K
R143	ERDS2TJ822	8.2K
R144	ERDS2TJ682	6.8K
R145	ERDS2TJ221	220
RF201, 202 ⚠	ERDS2FCJ100	10
R201	ERDS2TJ563	56K
R202	ERDS2TJ153	15K
R203	ERDS2TJ334	330K
R204	ERDS2TJ183	18K
R205	ERDS2TJ393	39K
R206	ERDS2TJ123	12K
R207	ERDS2TJ101	100
R210	ERDS2TJ680	68
R211 ⚠	ERD25FJ1R0	1
R212	ERDS2TJ563	56K
R213	ERDS2TJ153	15K
R214	ERDS2TJ334	330K
R215	ERDS2TJ183	18K
R216	ERDS2TJ393	39K
R217	ERDS2TJ123	12K
R218	ERDS2TJ101	100
R221	ERDS2TJ560	56
R222 Ⓢ ⚠	ERD25FJ1R0	1
R223	ERDS2TJ222	2.2K
R224	ERDS2TJ104	100K
R225	ERDS2TJ103	10K
R226	ERDS2TJ473	47K
R227, 228	ERDS2TJ223	22K
R229	ERDS2TJ223	22K
R230	ERDS2TJ103	10K
R231	ERDS2TJ104	100K
R232	ERDS2TJ103	10K
R233	ERDS2TJ273	27K
R234	ERDS2TJ473	47K
R235	ERDS2TJ823	82K
R236	ERDS2TJ154	150K
R237	ERDS2TJ103	10K
R238	ERDS2TJ123	12K
R239	ERDS2TJ562	5.6K
R240	ERDS2TJ822	8.2K
R241	ERDS2TJ103	10K
R242	ERDS2TJ472	4.7K
R243	ERDS2TJ823	82K
R244	ERDS2TJ473	47K
R245	ERDS2TJ101	100
R247	ERDS2TJ273	27K
R248	ERDS2TJ103	10K
R249, 250	ERDS2TJ273	27K
R251	ERDS2TJ823	82K
R252	ERDS2TJ822	8.2K
R253	ERDS2TJ154	150K
R254	ERDS2TJ103	10K
R255 ⚠	ERD25FJ2R2	2.2
R256	ERDS2TJ124	120K
R257	ERDS2TJ473	47K
R258, 259	ERDS2TJ333	33K
R260	ERDS2TJ103	10K
R261	ERDS2TJ333	33K
R263	ERDS2TJ473	47K
R264	ERDS2TJ472	4.7K
R265	ERDS2TJ124	120K
R266	ERDS2TJ473	47K
R267, 268	ERDS2TJ472	4.7K
R271	ERDS2TJ682	6.8K
R272	ERDS2TJ224	220K
R273	ERDS2TJ103	10K
R274	ERDS2TJ273	27K
R275	ERDS2TJ683	68K
R276	ERDS2TJ102	1K
R291	ERDS2TJ562	5.6K
R292	ERDS2TJ103	10K
R301	ERDS2TJ223	22K
R302	ERDS2TJ153	15K
R303, 304	ERDS2TJ472	4.7K
R305	ERDS2TJ222	2.2K
R306	ERDS2TJ392	3.9K
R307	ERDS2TJ823	82K
R308	ERDS2TJ123	12K
R309	ERDS2TJ472	4.7K
R310, 311	ERDS2TJ103	10K
R312	ERDS2TJ104	100K
R313	ERDS2TJ332	3.3K
R314	ERDS2TJ682	6.8K
R315	ERDS2TJ123	12K
R316	ERDS2TJ472	4.7K
R317, 318	ERDS2TJ123	12K
R320	ERDS2TJ103	10K
R321	ERDS2TJ222	2.2K
R322	ERDS2TJ123	12K
R402	ERDS2TJ392	3.9K
R403	ERDS2TJ333	33K
R404	ERDS2TJ102	1K
R405, 406	ERDS2TJ103	10K
R407	ERDS2TJ103	10K
R408	ERDS2TJ222	2.2K
R409	ERDS2TJ273	27K
R410	ERDS2TJ392	3.9K
R411	ERDS2TJ103	10K
R412	ERDS2TJ152	1.5K
R413	ERDS2TJ223	22K
R414	ERDS2TJ473	47K
R415	ERDS2TJ123	12K
R416, 417	ERDS2TJ561	560
R419	ERDS2TJ222	2.2K
R420	ERDS2TJ564	560K
R423	ERDS2TJ104	100K
R425	ERDS2TJ103	10K
R426	ERDS2TJ561	560
R427	ERDS2TJ682	6.8K
R428	ERDS2TJ471	470
R429	ERDS2TJ103	10K
R430	ERDS2TJ221	220
R501 Ⓢ	ERX1ANJ1R5	1.5
R502 Ⓢ	ERD25TJ333	33K
R503, 504 Ⓢ	ERD25FJ330	33
R507	ERDS2TJ103	10K
R521	ERDS2TJ103	10K
R522	ERDS2TJ332	3.3K
R523	ERDS2TJ103	10K
R524	ERDS2TJ332	3.3K
R551	ERDS2TJ153	15K
R552	ERDS2TJ392	3.9K
R553	ERDS2TJ123	12K
R554	ERDS2TJ824	820K
R555	ERDS2TJ333	33K
R556	ERDS2TJ392	3.9K
R557	ERDS2TJ154	150K
R558, 559	ERDS2TJ104	100K
R560, 561	ERDS2TJ104	100K
R562	ERDS2TJ104	100K
R563	ERDS2TJ103	10K
R564	ERDS2TJ332	3.3K
R565	ERDS2TJ333	33K
R566, 567	ERDS2TJ103	10K
R568	ER0S2TKF1002	10K
R569	ERDS2TJ334	330K
R570	ERDS2TJ394	390K
R571	ERDS2TJ153	15K
R572	ERDS2TJ124	120K
R573	ERDS2TJ561	560
R574	ERDS2TJ332	3.3K
R575	ERDS2TJ333	33K
R576	ERDS2TJ101	100
R577	ERDS2TJ563	56K
R578	ERDS2TJ103	10K
R579	ERDS2TJ101	100
R580	ERDS2TJ104	100K
R581, 582	ERDS2TJ103	10K
R584	ERDS2TJ122	1.2K
R585	ER0S2TKF3901	3.9K
R586	ER0S2TKF2201	2.2K
R587	ERDS2TJ684	680K
R614	ERDS2TJ333	33K
R620	ERDS2TJ103	10K
R621	ERDS2TJ333	33K
R619, 620	ER0S2TKG7501	7.5K
R621, 622	ER0S2TKG2401	2.4K
R625, 626	ERDS2TJ474	470K

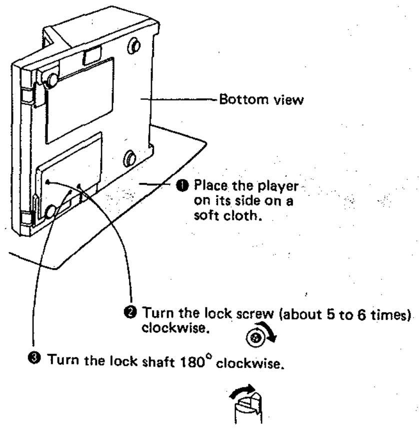
Ref. No.	Part No.	Value
R627, 628	ER0S2TKG2401	2.4K
R629, 630	ER0S2TKG4701	4.7K
R631, 632	ERDS2TJ121	120
R633, 634	ERDS2TJ473	47K
R635, 636	ERDS2TJ822	8.2K
R637, 638	ERDS2TJ182	1.8K
R639, 640	ER0S2TKG3301	3.3K
R641, 642	ER0S2TKG2000	200
R643, 644	ER0S2TKF2201	2.2K
R645, 646	ERDS2TJ472	4.7K
R647, 648	ERDS2TJ472	4.7K
R649, 650	ERDS2TJ103	10K
R651, 652	ERDS2TJ103	10K
R653	ERDS2TJ472	4.7K
R654	ERDS2TJ102	1K
R655, 656	ERDS2TJ472	4.7K
R663	ERDS2TJ222	2.2K
R664	ERDS2TJ152	1.5K
R671, 672	ERDS2TJ272	2.7K
R673, 674	ERDS2TJ473	47K
R675, 676	ERDS2TJ103	10K
R677, 678	ERDS2TJ183	18K
R679, 680	ERDS2TJ333	33K
R681, 682	ERDS2TJ183	18K
R683, 684	ERDS2TJ333	33K
R685, 686	ERDS2TJ820	82
R687, 688	ERDS2TJ820	82
R689, 690	ERDS2TJ562	5.6K
R691	ERDS2TJ471	470
R692	ERDS2TJ563	56K
R693	ERDS2TJ562	5.6K
R694	ERDS2TJ563	56K
R695 Ⓢ ⚠	ERD25FJ3R3	3.3
R701	ERDS2TJ105	1M
R702	ERDS2TJ103	10K
R703	ERDS2TJ473	47K
R704	ERDS2TJ103	10K
R705	ERDS2TJ472	4.7K
R706	ERDS2TJ102	1K
R707	ERDS2TJ473	47K
R708	ERDS2TJ473	4.7K
R709	ERDS2TJ103	10K
R710	ERDS2TJ472	4.7K
R711	ERDS2TJ103	10K
R712, 713	ERDS2TJ472	4.7K
R714	ERDS2TJ103	10K
R715, 716	ERDS2TJ472	4.7K
R717, 718	ERDS2TJ472	4.7K
R719, 720	ERDS2TJ472	4.7K
R721, 722	ERDS2TJ472	4.7K
R723, 724	ERDS2TJ472	4.7K
R725	ERDS2TJ472	4.7K
R726	ERDS2TJ102	1K
R727	ERDS2TJ271	270
R728	ERDS2TJ684	680K
R729	ERDS2TJ471	470
R730	ERDS2TJ473	47K
R731	ERDS2TJ472	4.7K
R732	ERDS2TJ102	1K
R734	ERDS2TJ103	10K
R735	ERDS2TJ472	4.7K
R736, 737	ERDS2TJ471	470
R738	ERDS2TJ472	4.7K
R739, 740	ERDS2TJ103	10K
R741, 742	ERDS2TJ472	4.7K
R751, 752	ERDS2TJ223	22K
R753, 754	ERDS2TJ223	22K
R755, 756	ERDS2TJ223	22K
R757, 758	ERDS2TJ223	22K
R759, 760	ERDS2TJ223	22K
R761, 762	ERDS2TJ223	22K
R763, 764	ERDS2TJ223	22K
R765, 766	ERDS2TJ221	220
R767, 768	ERDS2TJ221	220
R769, 770	ERDS2TJ221	220
R771, 772	ERDS2TJ221	220
R801, 802	ER0S2TKG2201	2.2K
R805, 806	ERDS2TJ104	100K
R807, 808	ERDS2TJ100	10
R809, 810	ERDS2TJ222	2.2K
R811, 812	ER0S2TKG2701	2.7K
R813, 814	ER0S2TKG1202	12K
R815 (×2) Ⓢ ⚠	ERD25FJ150	15
R817 (×2) Ⓢ ⚠	ERD25FJ150	15
R819 (×2)	ERDS2TJ471	470
R821 (×2)	ERDS2TJ183	18K
R823 (×2)	ERDS2TJ471	470
R825 (×2)	ERDS2TJ8R2	8.2
R827 (×2)	ERDS2TJ8R2	8.2
R829, 830	ER0S2TKG1801	1.8K
R831, 832	ER0S2TKG1801	1.8K
R833, 834	ERDS2TJ222	2.2K
R835, 836	ER0S2TKG2701	2.7K
R837, 838	ER0S2TKG1202	12K
R839 (×2) Ⓢ ⚠	ERD25FJ150	15
R841 (×2) Ⓢ ⚠	ERD25FJ150	15
R843 (×2)	ERDS2TJ471	470
R845 (×2)	ERDS2TJ183	18K
R847 (×2)	ERDS2TJ471	470
R849 (×2)	ERDS2TJ8R2	8.2
R851 (×2)	ERDS2TJ8R2	8.2
R853, 854	ERDS2TJ103	10K
R855, 856	ER0S2TKG2700	270
R857, 858	ER0S2TKG2700	270
R859, 860	ER0S2TKG39R0	39
R861, 862	ERDS2TJ621	620
R863, 864	ERDS2TJ621	620
R881, 882	ERDS2TJ470	47
R883	ERDS2TJ470	47
R884	ERDS2TJ822	8.2K
R885	ERDS2TJ223	22K
R886, 887	ERDS2TJ470	47
R888	ERDS2TJ470	47
R889	ERDS2TJ822	8.2K
R890	ERDS2TJ223	22K
R891, 892	ERDS2TJ470	47
R893	ERDS2TJ470	47
R894	ERDS2TJ822	8.2K
R895	ERDS2TJ223	22K
R951	ERDS2TJ472	4.7K
R952	ERDS2TJ103	10K
R953	ERDS2TJ472	4.7K
R954	ERDS2TJ103	10K
R955	ERDS2TJ471	470
R956	ERDS2TJ103	10K
R958	ERDS2TJ222	2.2K
R959	ERDS2TJ472	4.7K
R960	ERDS2TJ272	2.7K
R961	ERDS2TJ102	1K
R962	ERDS2TJ103	10K
R963	ERDS2TJ102	1K
R964	ERDS2TJ221	220
R966	ERDS2TJ103	10K
R967, 968	ERDS2TJ221	220
R969, 970	ERDS2TJ102	1K
R971, 972	ERDS2TJ103	10K
R973	ERDS2TJ102	1K
R974, 975	ERDS2TJ472	4.7K

• CAPACITORS

Ref. No.	Part No.	Value
C17, 18	ECEA1VU102	1000
C24, 25	ECEA1CS100	10
C27, 28	ECKD1H223ZF	0.022
C29, 30	ECKD1H223ZF	0.022
C51 ⚠ [M, MC]	ECKDMY103PF	0.01
C51 ⚠ [Other areas]	ECKDKC103PF	0.01
C52, 53 ⚠ [M, MC]	ECKDAL102Z	0.001
C52, 53 ⚠ [Other areas]	ECKDHS222MD	0.0022
C54~56 ⚠ [M, MC]	ECKDMY103PF	0.01
C54~56 ⚠ [Other areas]	ECKDKC103PF	0.01
C57	ECEA2AS470	47
C58 Ⓢ	ECEA1HU100	10
C59 Ⓢ	ECEA1HU4R7	4.7
C62, 63 Ⓢ	ECKD1H103MD	0.01
C64, 65	ECES1CV223Y	22000
C68	ECFR1H104ZF	0.1
C69 Ⓢ	ECEA1CU470	47
C70	ECFR1H104ZF	0.1
C71 Ⓢ	ECEA1AU101	100
C72, 73 Ⓢ	ECKD1H103MD	0.01
C74, 75	ECET16R472SW	4700
C76 Ⓢ	ECEA2AS221	220
C77	ECFR1H104ZF	0.1
C78, 79 Ⓢ	ECES1CV223Y	22000
C80, 81	ECES1CV223Y	22000
C81, 82 ⚠ Except for [M, MC] (12 P.C.B.)	ECKDHS222MD	0.0022
C82, 83	ECES1CV223Y	22000
C102 Ⓢ	ECKD1H473ZF	0.047
C103	ECEA1CK100	10
C111 Ⓢ	ECKD1H681KB	680P
C112 Ⓢ	ECKD1H331KB	330P
C113, 114	ECEA1HK2R2	2.2
C115 Ⓢ ⚠	ECEA1CN100S	10
C116 Ⓢ	ECKD1H103ZF	0.01
C117 Ⓢ	ECEA50Z3R3	3.3
C118 Ⓢ	ECKD1H102KB	0.001
C119 Ⓢ	ECKD1H104ZF	0.1
C120	ECEA1CK220	22
C121	ECQM1H223KV	0.022
C123, 124 Ⓢ	ECKD1H102KB	0.001
C125 Ⓢ	ECKD1H101KB	100P
C126	ECQM1H562KV	0.0056
C127	ECQM1H223KV	0.022
C129	ECEA0JK330	33
C130 Ⓢ	ECKD1H473ZF	0.047
C131	ECEA0JK330	33
C132 Ⓢ	ECKD1H473ZF	0.047
C133	ECKD1H102KV	0.001
C134 Ⓢ	ECKD1H681KB	680P
C135 Ⓢ	ECKD1H104ZF	0.1
C136, 137 Ⓢ	ECCD1H100KC	10P
C201	ECQM1H104KV	0.1
C202 Ⓢ ⚠	ECEA1HN010S	1
C203 Ⓢ	ECCD1H221K	220P
C205 Ⓢ ⚠	ECEA1HN010S	1
C206	ECQM1H104KV	0.1
C207 Ⓢ ⚠	ECEA1HN010S	1
C208 Ⓢ	ECCD1H181K	180P
C210	ECQM1H823KV	0.082
C211, 212 Ⓢ	ECKD1H223ZF	0.022
C213 Ⓢ	ECKD1H223ZF	0.022
C216	ECQM1H153KV	0.015
C218	ECQM1H333KV	0.033
C220 Ⓢ ⚠	ECEA1CN100S	10
C221	ECKD1H471KB	470P
C222	ECKD1H103ZF	0.01
C223	ECQM1H102KV	0.001
C224	ECQM1H103KV	0.01
C225 Ⓢ	ECEA1HSR33	0.33
C226 Ⓢ	ECKD1H222KB	0.0022
C227 Ⓢ	ECKD1H103ZF	0.01
C228, 229 Ⓢ	ECKD1H223ZF	0.022
C231	ECQM1H472KV	0.0047
C232 Ⓢ ⚠	ECEA1HN010S	1
C233 Ⓢ	ECKD1H680KB	68P
C234 Ⓢ ⚠	ECEA1CN100S	10
C301 Ⓢ ⚠	ECEA1CN100S	10
C302	ECQM1H104KV	0.1
C303	ECQM1H333KV	0.033
C304	ECQM1H102KV	0.001
C305	ECQM1H103KV	0.01
C307 Ⓢ	ECEA1HU100	10
C308 Ⓢ	ECCD1H100KC	10P
C401 Ⓢ ⚠	ECEA25N4R7	4.7
C402	ECQM1H682KV	0.0068
C403	ECQM1H272KV	0.0027
C404 Ⓢ	ECKD1H223PF	0.022
C405 Ⓢ	ECEA1CS100	10
C406 Ⓢ	ECKD1H223PF	0.022
C407	ECQM1H122KV	0.0012
C408 Ⓢ	ECCD1H270K	27P
C409	ECQM1H332KV	0.0033
C410 Ⓢ	ECKD1H271KB	270P
C412 Ⓢ	ECCD1H220K	22P
C413 Ⓢ	ECCD1H100K	10P
C414 Ⓢ	ECEA0JU470	47
C415 Ⓢ	ECKD1H223ZF	0.022
C416 Ⓢ	ECEA1CS100	10
C417	ECQM1H224KV	0.22
C418	ECQM1H104KV	0.1
C419	ECQM1H392KV	0.0039
C420	ECQM1H333KV	0.033
C501 Ⓢ (10 P.C.B.)	ECEA1EU101	100
C501 Ⓢ (04 P.C.B.)	ECEA1HS4R7	4.7
C502 Ⓢ (10 P.C.B.)	ECEA1HUR22	0.22
C502, 503 (04 P.C.B.)	ECKF1H104ZV	0.1
C503, 504 Ⓢ ⚠ (10 P.C.B.)	ECEA1EN4R7	4.7
C504, 505 Ⓢ (04 P.C.B.)	ECCD1H330J	33P
C505 Ⓢ (10 P.C.B.)	ECKD1H333ZF	0.033
C506, 507 (04 P.C.B.)	ECKF1H104ZV	0.1
C506 Ⓢ (10 P.C.B.)	ECKD1H102KB	0.001
C507 Ⓢ (10 P.C.B.)	ECEA1CU100	10
C551 Ⓢ	ECKD1H331KB	330P
C552	ECQM1H333KV	0.033
C553	ECQM1H392KV	0.0039
C554	ECKF1H473ZV	0.047
C555 Ⓢ	ECEA50M2R2R	2.2
C556	ECQM1H124KV	0.12
C557 Ⓢ	ECEA50Z1	1
C558	ECQM1H152KV	0.0015
C559	ECQM1H274KV	0.27
C561 Ⓢ	ECEA50M2R2R	2.2
C562	ECQM1H392KV	0.0039
C563, 564 Ⓢ	ECEA50MR22R	0.22
C566 Ⓢ ⚠	ECEA1HNR47S	0.47
C567	ECQM1H184KV	0.18
C569	ECQM1H103KV	0.01
C570 Ⓢ	ECEA1CS220	22
C571 Ⓢ	ECCD1H181J	180P
C572, 573 Ⓢ	ECEA1CS100	10
C574	ECQM1H224KV	0.22
C576	ECQM1H332KV	0.0033
C601, 602 Ⓢ	ECEA1CU331	330
C603, 604 Ⓢ	ECEA1CU331	330
C605, 606 Ⓢ	ECEA1CU331	330
C611, 612 Ⓢ	ECCD1H471J	470P
C613, 614	ECQP1103GZ	0.01
C615, 616	ECQP1102GZ	0.001
C617, 618 Ⓢ ⚠	ECEA1CN470S	47
C619, 620 Ⓢ ⚠	ECEA1CN100S	10
C621, 622	ECQM1H102KV	0.001
C623, 624 Ⓢ	ECCD1H100K	10
C625, 626 Ⓢ	ECKD1H103MD	0.01
C627, 628 Ⓢ	ECKD1H103MD	0.01
C632, 633 Ⓢ	ECEA1VU100	10
C634, 635 Ⓢ	ECEA1CU470	47
C636 Ⓢ	ECEA0JU470	47
C637 Ⓢ	ECEA0JU101	100
C638	ECEA0JU102	1000
C639	ECEA0JU101	100
C640, 641	ECFR1H104ZF	0.1
C642, 643	ECFR1H104ZF	0.1
C644, 645	ECFR1H104ZF	0.1
C646, 647 Ⓢ	ECFR1H104ZF	0.1
C648, 649	ECFR1H104ZF	0.1
C650, 651	ECFR1H104ZF	0.1
C652 Ⓢ	ECCD1H681K	680P
C653	ECFR1H104ZF	0.1
C654	ECQM1H102KV	0.001
C655, 656 Ⓢ ⚠	ECEA1CN100S	10
C655, 656 Ⓢ	ECKD1H103MD	0.01
C657, 658 Ⓢ	ECKD1H103MD	0.01
C659, 660 Ⓢ	ECKD1H103MD	0.01
C661, 662 Ⓢ	ECKD1H103MD	0.01
C663 Ⓢ	ECEA1CU100	10
C664 Ⓢ	*ECKD1H103MD*	*0.01*
C665, 666	ECFR1H104ZF	0.1
C667	ECFR1H104ZF	0.1
C671, 672 Ⓢ	ECKD1H103MD	0.01
C673, 674 Ⓢ	ECKD1H103MD	0.01
C675, 676	ECET35R682SW	6800
C677, 678 Ⓢ	ECEA1VU100	10
C679, 680 Ⓢ	ECEA1CU100	10
C681, 682 Ⓢ	*ECEA1CU100*	*10*
C683, 684 Ⓢ ⚠	ECEA1HN010S	1
C685, 686 Ⓢ	ECCD1H101K	100P
C687, 688 Ⓢ	ECCD1H101K	100P
C689	ECQM1H333KV	0.033
C690	*ECQM1H223KV*	*0.022*
C691 Ⓢ	ECEA1HU2R2	2.2
C692	ECQM1H224KV	0.22
C693	*ECFR1H104ZF*	0.1
C701, 702 Ⓢ	ECCD1H151K	150P
C703	ECFR1H104ZF	0.1
C704 Ⓢ	ECEA1CU220	22
C705, 706 Ⓢ	ECKD1H101K	100P
C707, 708 Ⓢ	*ECEA50ZR1*	0.1
C709	ECFR1H104ZF	0.1
C715, 716 Ⓢ	ECEA0JU471	470
C717, 718 Ⓢ	ECEA0JU471	470
C721, 722 Ⓢ	ECKD1H103MD	0.01
C723, 724 Ⓢ	ECKD1H103MD	0.01
C725, 726 Ⓢ	ECKD1H103MD	0.01
C727, 728 Ⓢ	ECKD1H103MD	0.01
C729, 730 Ⓢ	ECKD1H103MD	0.01
C731, 732 Ⓢ	ECKD1H103MD	0.01
C733, 734 Ⓢ	ECKD1H103MD	0.01
C735, 736 Ⓢ	ECKD1H103MD	0.01
C737, 738 Ⓢ	ECKD1H103MD	0.01
C739, 740 Ⓢ	ECKD1H103MD	0.01
C741 Ⓢ	ECEA50ZR1	0.1
C742 Ⓢ	ECEA1HU101	100
C743, 744 Ⓢ	ECKD1H103MD	0.01
C745, 746 Ⓢ	ECKD1H103MD	0.01
C747, 748 Ⓢ	ECKD1H103MD	0.01
C749, 750 Ⓢ	ECKD1H103MD	0.01
C801, 802 Ⓢ ⚠	ECEA1CN330S	33
C803, 804 Ⓢ ⚠	ECEA1EN330S	33
C805, 806 Ⓢ	ECCD1H471K	470
C807 (×2) Ⓢ	ECEA0JU330	33
C809 (×2) Ⓢ	ECEA0JU330	33
C811, 812 Ⓢ	ECCD1H101K	100P
C813, 814 ⚠	ECEA1EN330S	33
C815, 816 Ⓢ	ECCD1H470K	47P
C817 (×2) Ⓢ	ECEA0JU330	33
C819 (×2) Ⓢ	ECEA0JU330	33
C823, 824 ⚠	ECEA1CN221S	220
C825, 826 ⚠	ECEA1CN221S	220
C827, 828 Ⓢ	ECEA1VU100	10
C829, 830 Ⓢ	ECEA1EU100	10
C831, 832	ECFR1H104ZF	0.1
C833, 834	ECFR1H104ZF	0.1
C952 Ⓢ	ECEA0JU471	470
C953 Ⓢ	ECKD1H103MD	0.01
C954	ECFR1H104ZF	0.1
C955, 956	ECFR1H104ZF	0.1
C957, 958	ECFR1H104ZF	0.1

■ PACKING

1. Lock the two lock screws and the lock shaft on the bottom of the unit.



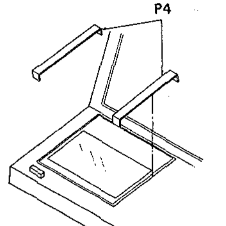
Bottom view

❶ Place the player on its side on a soft cloth.

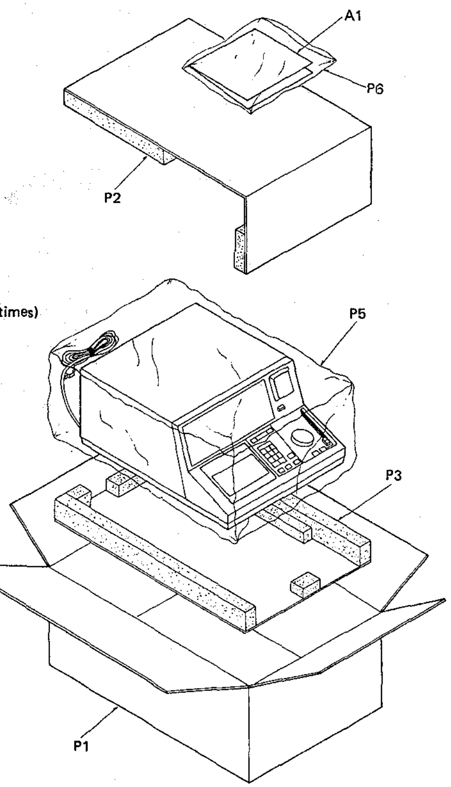
❷ Turn the lock screw (about 5 to 6 times) clockwise.

❸ Turn the lock shaft 180° clockwise.

2. Fit the cover in place.

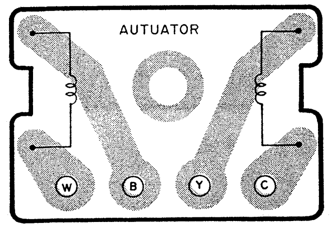


3. Pack the components according to the following procedure.

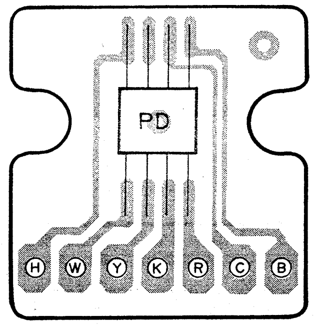


■ PRINTED CIRCUIT BOARDS

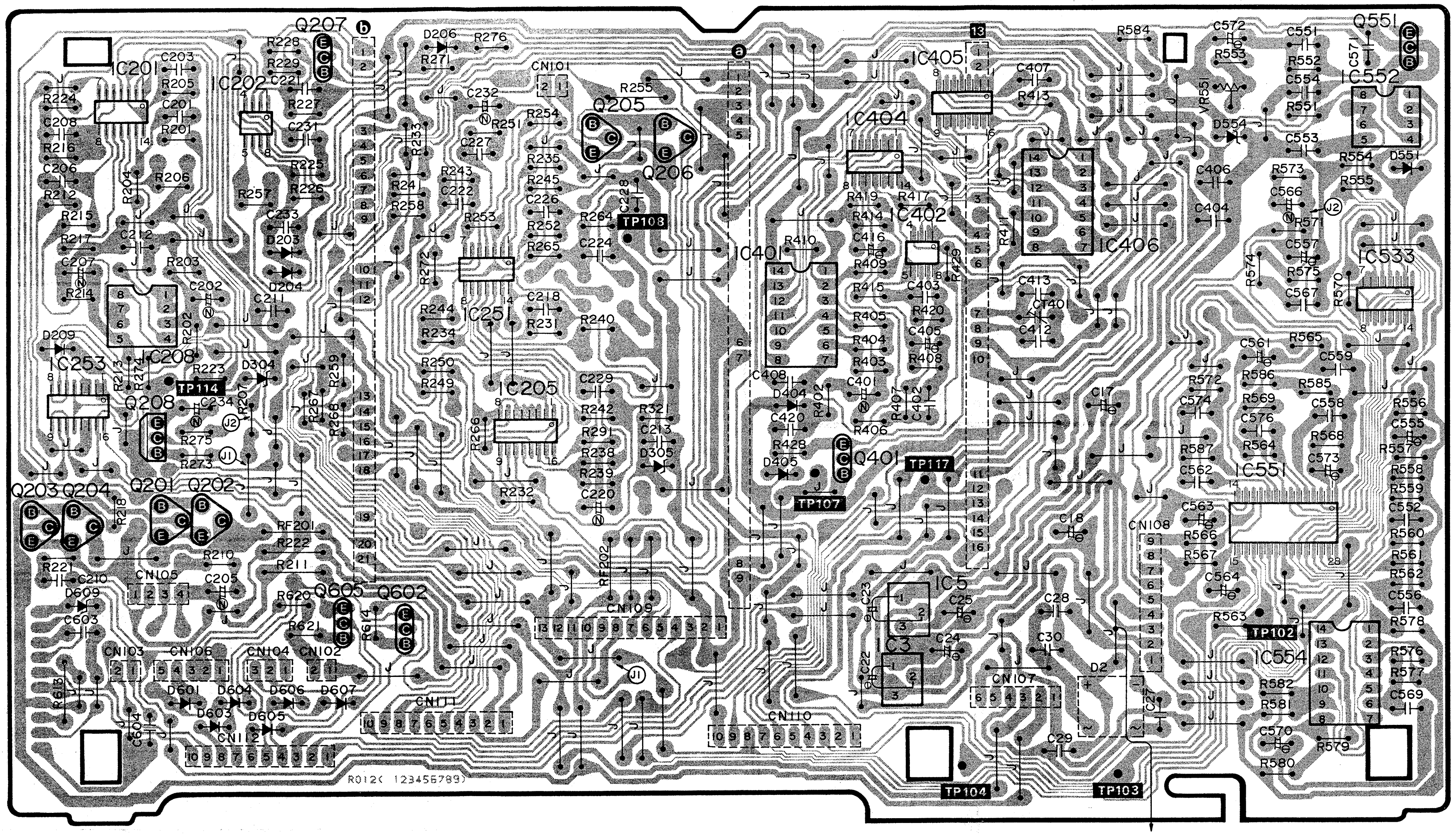
33 (Actuator coil P.C.B.)


AUTUATOR
W
B
Y
C

32 (Photo detector P.C.B.)

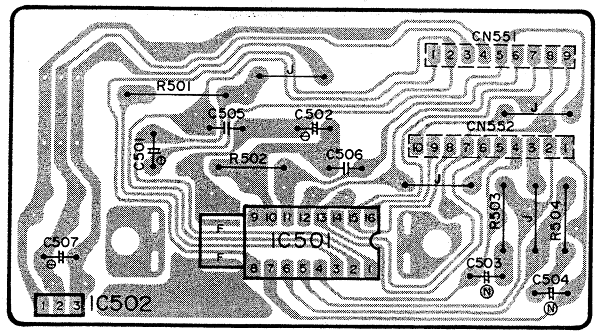


01 (Servo P.C.B.)

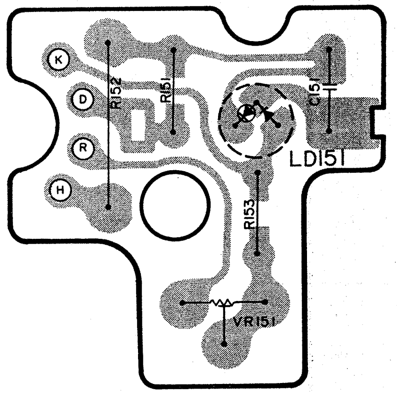

IC201
IC202
IC205
IC251
IC253
IC401
IC402
IC404
IC405
IC406
IC5
IC533
IC551
IC552
IC554
Q201
Q202
Q203
Q204
Q205
Q206
Q207
Q208
Q401
Q551
Q602
Q605
CN101
CN102
CN103
CN104
CN105
CN106
CN107
CN108
CN109
CN110
CN111
TP102
TP103
TP104
TP107
TP108
TP114
TP117
a
b
13

To **40** P.C.B.

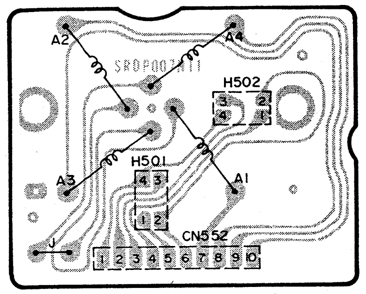
10 (Spindle motor drive P.C.B.)


CN551
CN552
IC501
IC502
R501
R502
R503
R504
C501
C502
C503
C504
C505
C506
C507

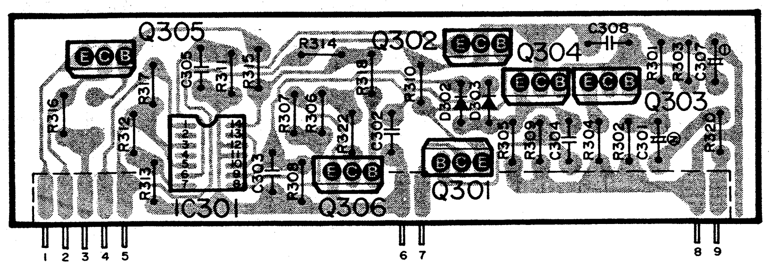
35 (Laser P.C.B.)


K
D
R
H
R151
R152
R153
C151
LD151
VR151

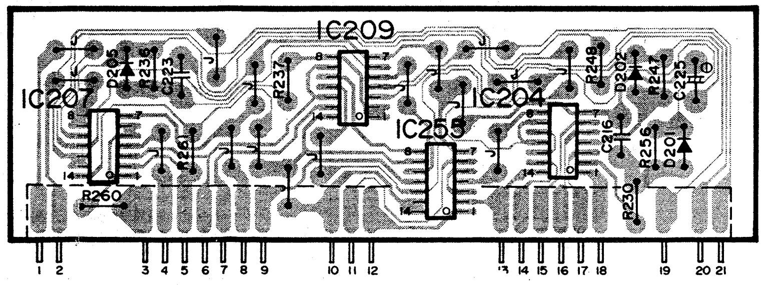
11 (Spindle motor drive coil P.C.B.)


A1
A2
A3
A4
H501
H502
CN552

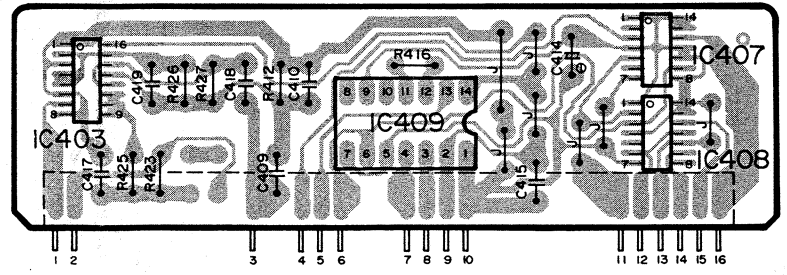
01 ⓐ


Q301
Q302
Q303
Q304
Q305
Q306
IC301
1 2 3 4 5
6 7
8 9

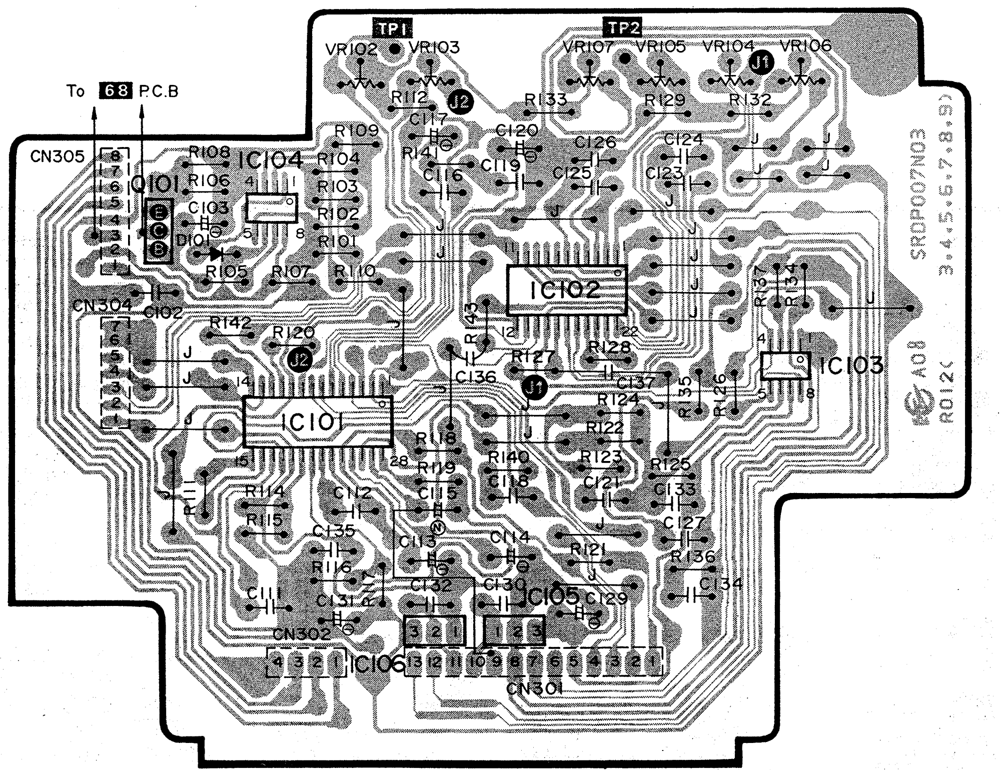
01 ⓑ


IC204
IC207
IC209
IC255
1 2
3 4 5 6 7 8 9
10 11 12
13 14 15 16 17 18
19
20 21

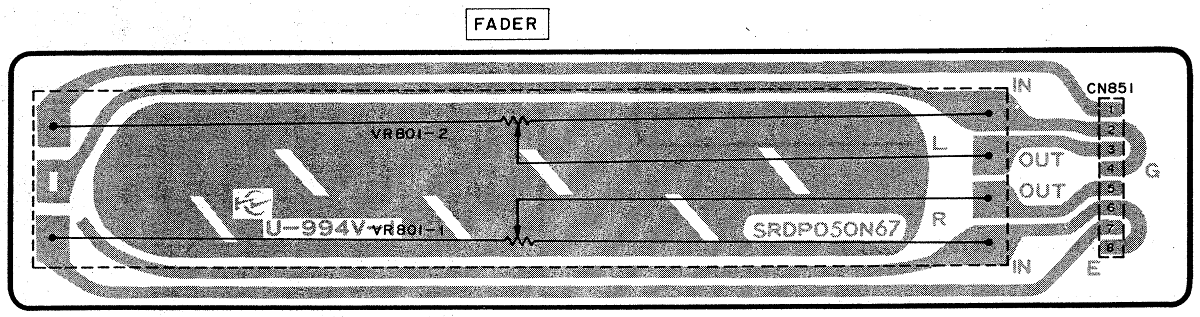
13


IC403
IC407
IC408
IC409
1 2
3
4 5 6
7 8 9 10
11 12 13 14 15 16

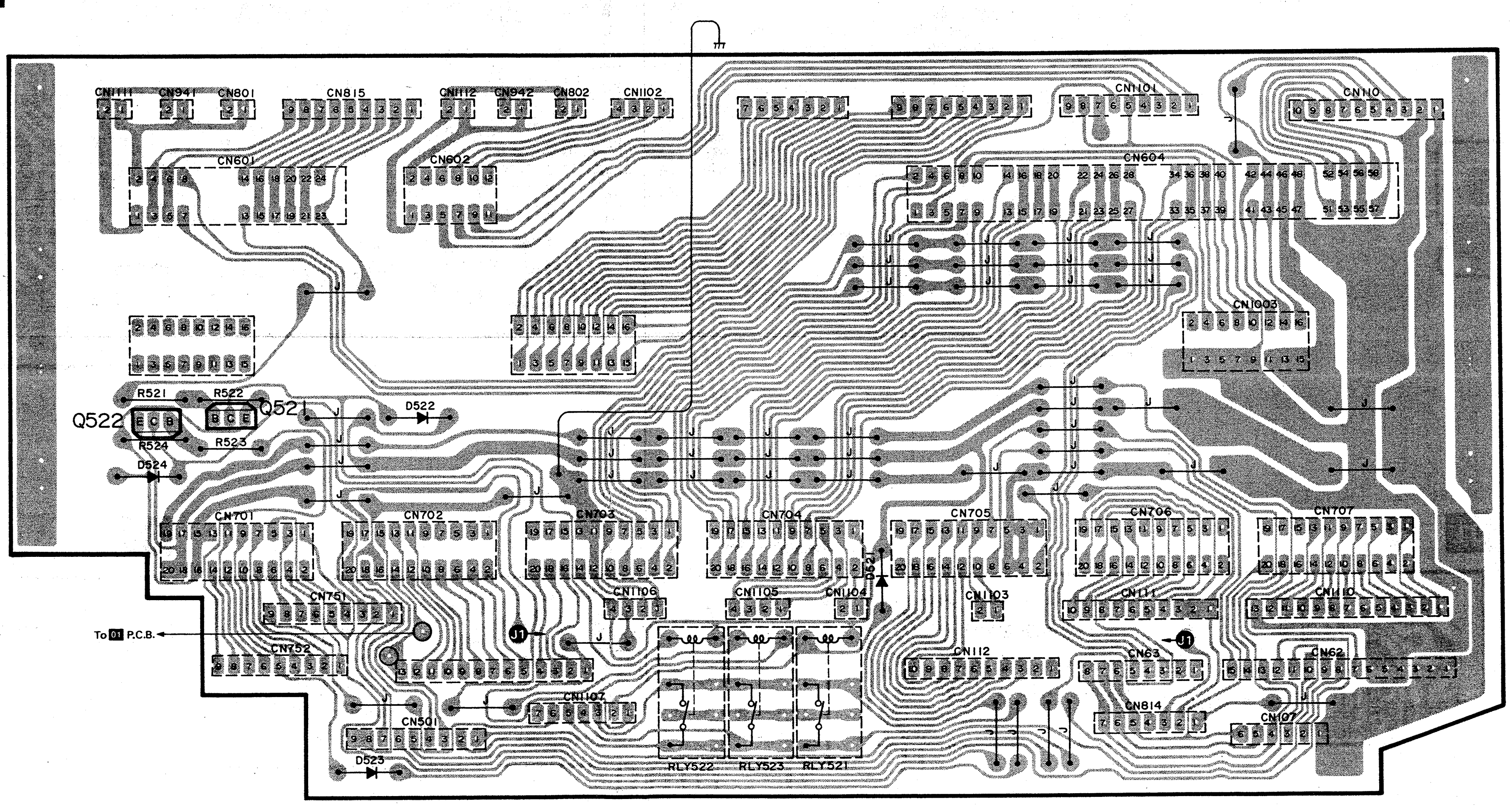
03 (Head amp. P.C.B.)


To 68 P.C.B
TP1
TP2
VR102
VR103
VR107
VR105
VR104
VR106
J1
J2
R112
R133
R129
R132
R109
C117
C120
C126
C124
CN305
R108
IC104
R104
R141
C119
C125
C123
Q101
R106
R103
C116
C103
R102
D101
R101
R105
R107
R110
IC102
R137
R131
CN304
C102
R142
R120
R143
4
IC103
J
R127
R128
C136
C137
R135
R126
R124
IC101
R118
R122
R140
R123
R119
C118
C121
R125
R114
C112
C115
C133
R115
C135
C113
C114
C127
R121
R136
R116
R117
C111
C131
C132
C130
IC105
C129
C134
CN302
IC106
CN301
SRDP007N03
3.4.5.6.7.8.9
A08
R012

67 (Fader VR P.C.B.)

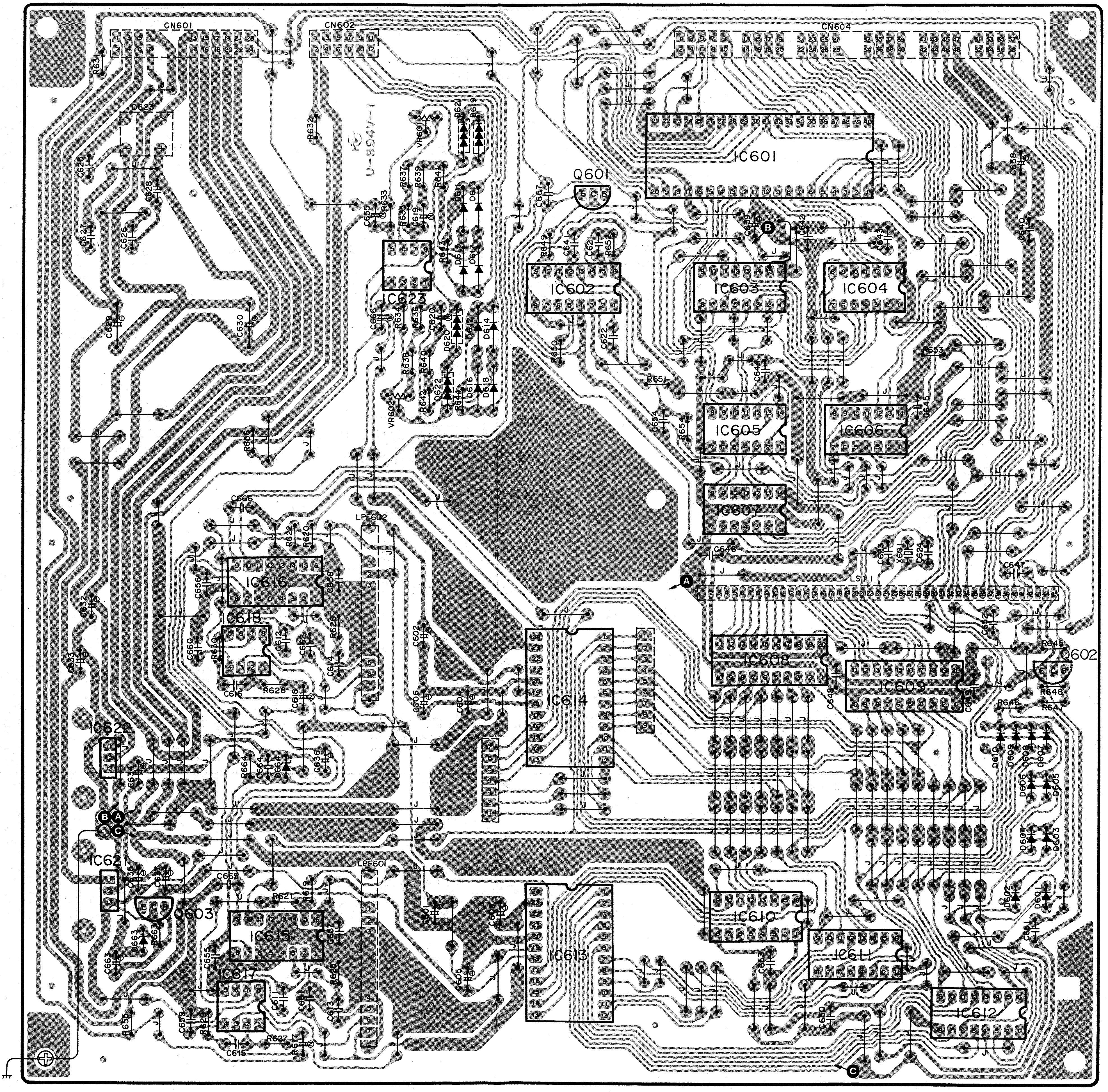

FADER
IN
CN851
VR801-2
L
OUT
OUT
G
U-994V
VR801-1
SRDP050N67
R
IN
E

40 (Mother P.C.B.)

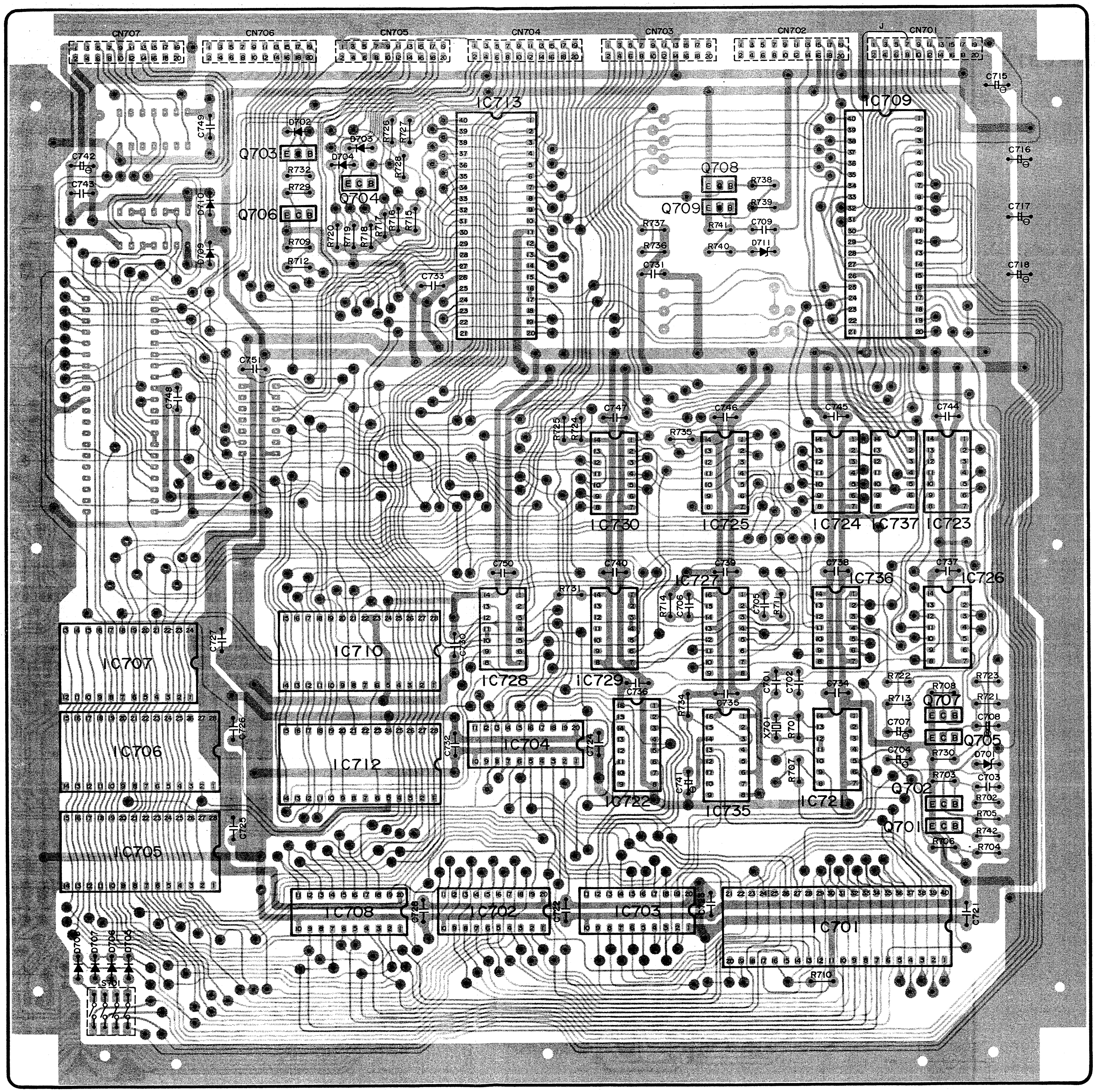

CN1111
CN941
CN801
CN815
CN1112
CN942
CN802
CN1102
CN1101
CN110
CN601
CN602
CN604
CN1003
R521
R522
Q522
Q521
D522
R524
R523
D524
CN701
CN702
CN703
CN704
D521
CN705
CN706
CN707
CN751
CN1106
CN1105
CN1104
CN1103
CN111
CN1110
To 01 P.C.B.
CN752
J1
CN1112
CN63
J1
CN62
CN501
CN1107
CN814
CN107
D523
RLY522
RLY523
RLY521

20

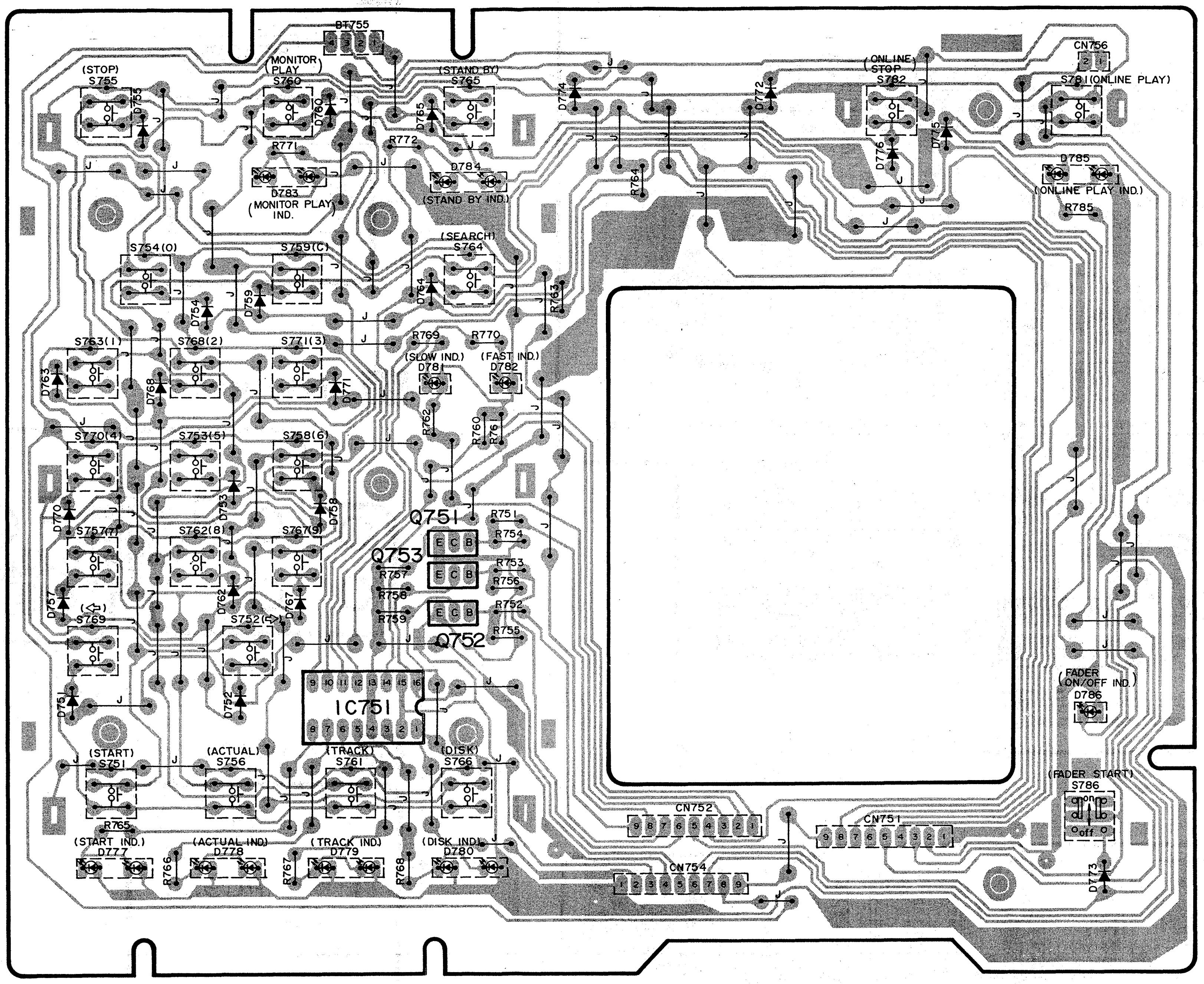
(Signal P.C.B.)


CN601
CN602
CN604
IC601
IC602
IC603
IC604
IC605
IC606
IC607
IC608
IC609
IC610
IC611
IC612
IC613
IC614
IC615
IC616
IC617
IC618
IC621
IC622
IC623
Q601
Q602
Q603
LPF601
LPF602
LSI1
X601
VR601
VR602
D623
U-994V-1
A
B
C

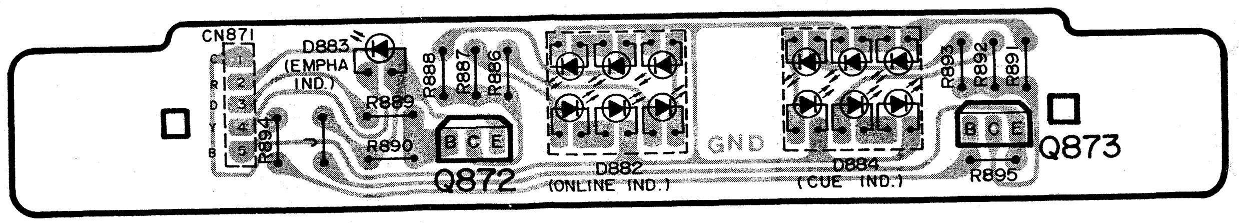
30 (CPU P.C.B.)

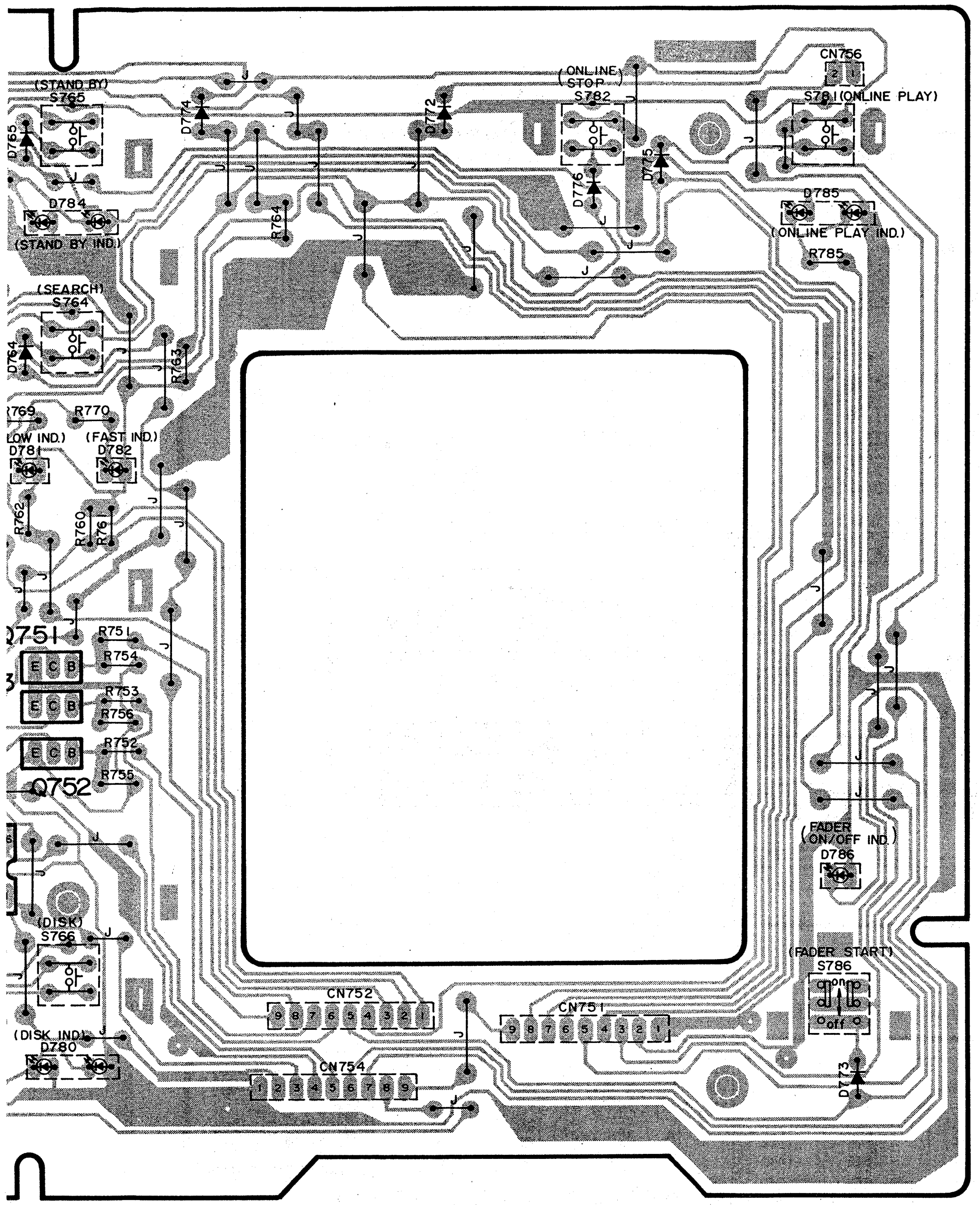

CN707
CN706
CN705
CN704
CN703
CN702
CN701
IC713
IC709
C715
C716
C717
C718
C749
C742
C743
D702
D703
D704
Q703
Q704
Q706
R732
R729
R726
R727
R728
D710
D709
R709
R712
R720
R719
R718
R717
R716
R715
C733
Q708
Q709
R738
R739
R737
R736
R741
R740
C709
D711
C731
C751
C748
C747
C746
C745
C744
R725
R724
R735
IC730
IC725
IC724
IC737
IC723
C750
C740
C739
C738
C737
IC727
IC736
IC726
R731
R714
C706
C705
R711
IC728
IC729
IC710
IC707
C727
IC706
C726
IC712
C730
C732
IC704
C724
C736
R734
C735
C701
C702
C734
R722
R708
R723
R713
Q707
R721
X701
R701
C707
C708
Q705
C704
R730
D701
R707
C741
IC722
IC735
IC721
R703
C703
Q702
R702
R705
Q701
R742
R706
R704
IC705
C725
IC708
C728
IC702
C722
IC703
IC701
C721
R710
D708
D707
D706
D705
S701

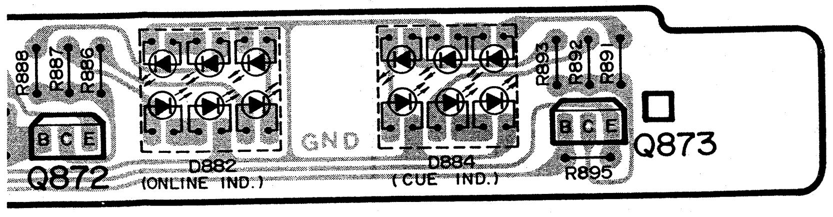
52 (Operation P.C.B.)


BT755
(STOP) S755
(MONITOR PLAY) S760
(STAND BY) S765
(ONLINE STOP) S782
CN756
S781 (ONLINE PLAY)
D755
D760
D765
D774
D772
D776
D775
R771
R772
D783 (MONITOR PLAY IND.)
D784 (STAND BY IND.)
D785 (ONLINE PLAY IND.)
R785
R764
S754 (0)
S759 (C)
(SEARCH) S764
D754
D759
D764
R763
S763 (1)
S768 (2)
S771 (3)
D763
D768
D771
R769
R770
(SLOW IND.) D781
(FAST IND.) D782
R762
R760
R761
S770 (4)
S753 (5)
S758 (6)
D753
D758
D770
S757 (7)
S762 (8)
S767 (9)
D757
D762
D767
(⇦) S769
S752 (⇨)
D751
D752
Q751
Q753
Q752
E C B
R751
R754
R753
R756
R752
R755
R757
R758
R759
IC751
(START) S751
(ACTUAL) S756
(TRACK) S761
(DISK) S766
R765
R766
R767
R768
(START IND.) D777
(ACTUAL IND.) D778
(TRACK IND.) D779
(DISK IND.) D780
CN752
CN751
CN754
(FADER ON/OFF IND.) D786
(FADER START) S786
on
off
D773

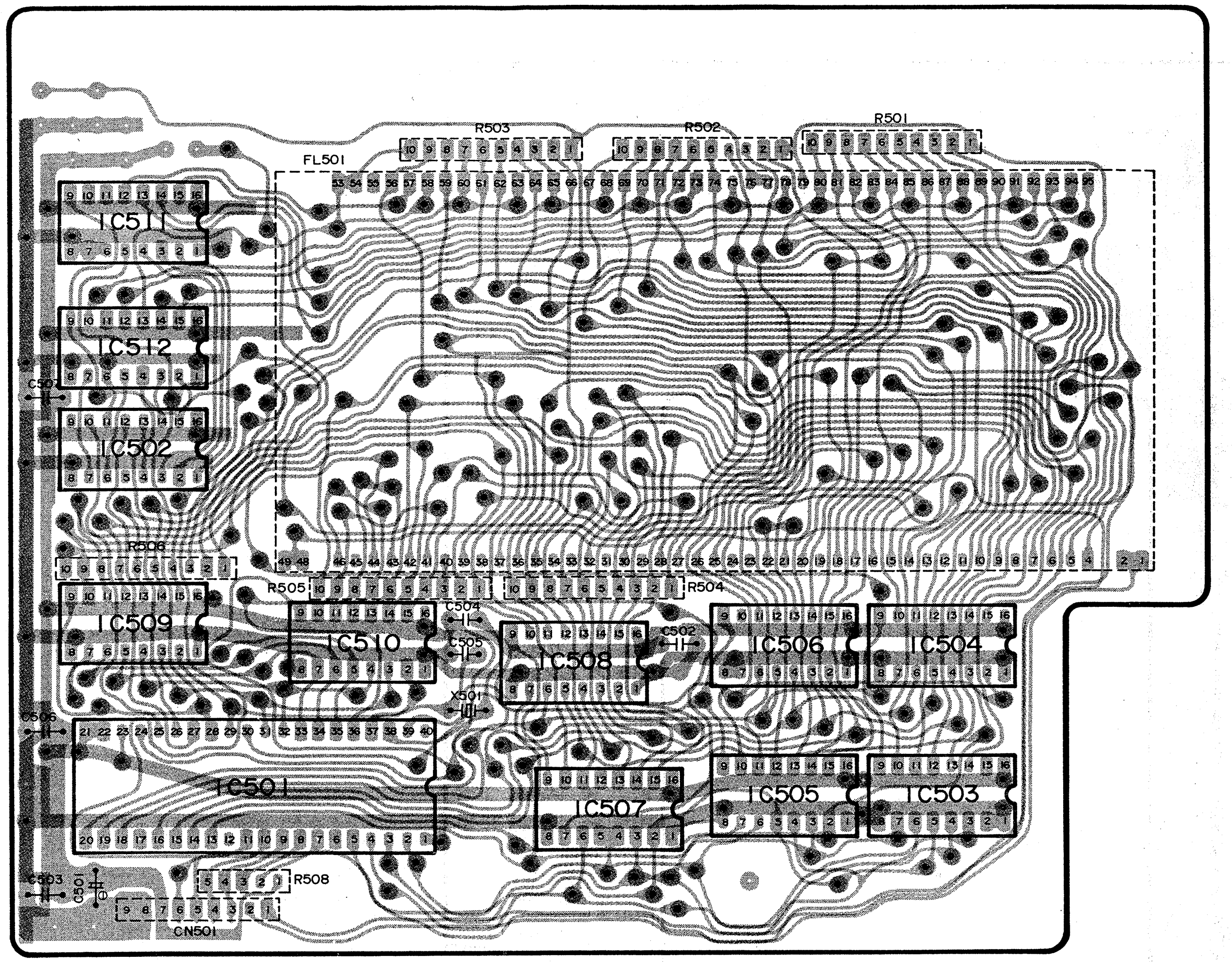
56 (LED P.C.B.)


CN871
D883 (EMPHA IND.)
R888
R887
R886
R889
R890
R894
B C E
Q872
GND
D882 (ONLINE IND.)
D884 (CUE IND.)
R893
R892
R891
R895
B C E
Q873

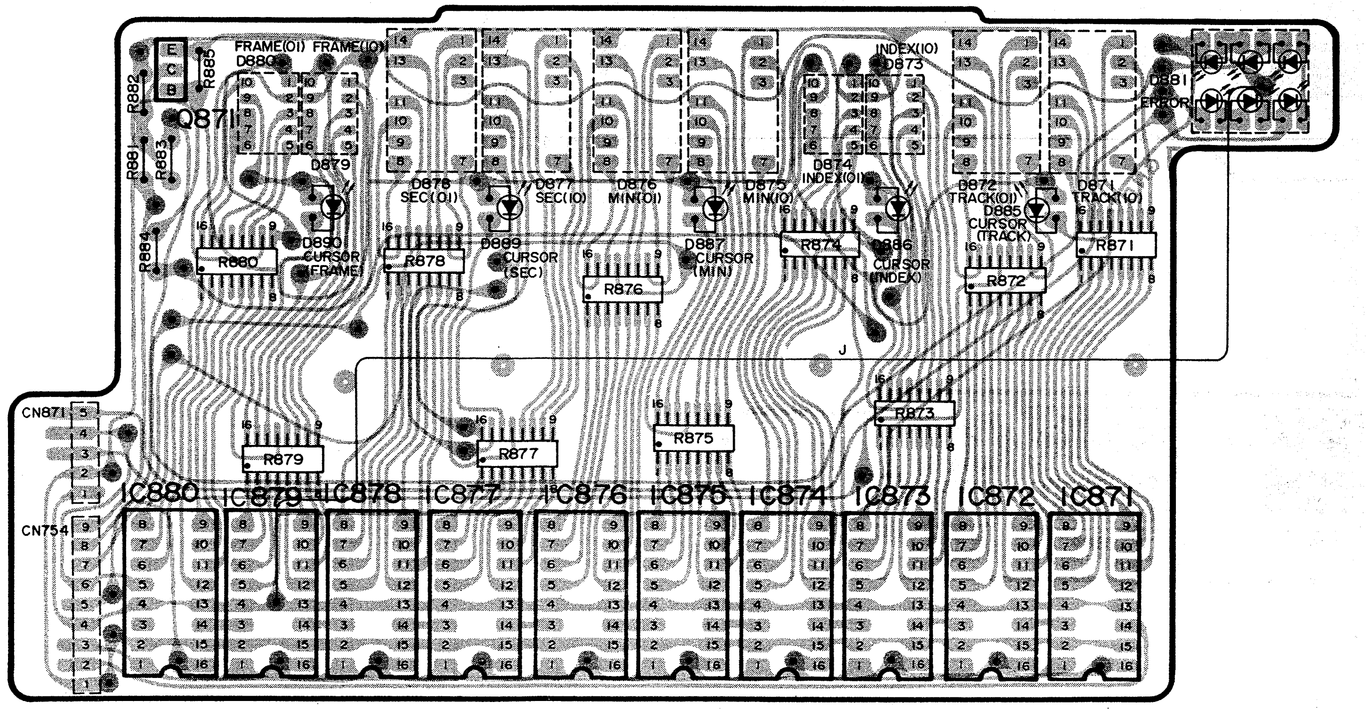

(STAND BY)
S765
D765
D774
D772
(ONLINE STOP)
S782
CN756
S781 (ONLINE PLAY)
D776
D775
D784
(STAND BY IND.)
D785
(ONLINE PLAY IND.)
R785
R764
(SEARCH)
S764
D764
R763
R769
R770
LOW IND.)
(FAST IND.)
D781
D782
R762
R760
R761
Q751
R751
R754
R753
R756
R752
R755
E C B
Q752
(FADER ON/OFF IND.)
D786
(DISK)
S766
(DISK IND.)
D780
CN752
CN751
CN754
(FADER START)
S786
on
off
D773
J


R888
R887
R886
B C E
Q872
D882
(ONLINE IND.)
GND
D884
(CUE IND.)
R893
R892
R891
B C E
R895
Q873

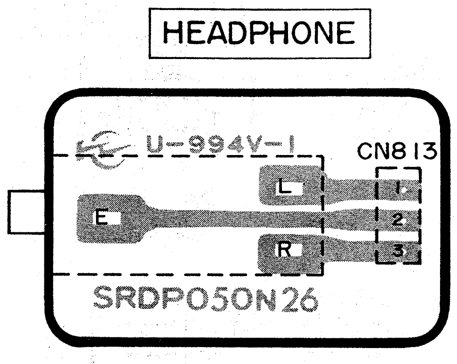
04 (FL display P.C.B.)


R503
R502
R501
FL501
IC511
IC512
IC502
C507
R506
R505
R504
C504
C505
C502
IC509
IC510
IC508
IC506
IC504
X501
C506
IC501
IC507
IC505
IC503
C503
C501
R508
CN501

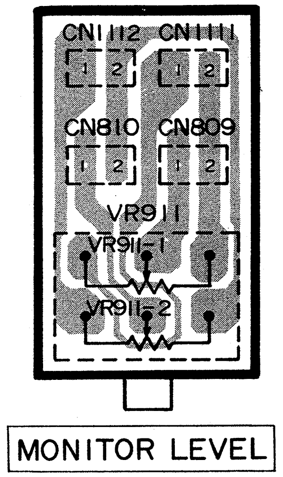
54 (Digital display P.C.B.)


E
C
B
R882
R885
FRAME(OI)
FRAME(IO)
D880
Q871
R881
R883
D879
R880
D890 CURSOR (FRAME)
D878 SEC(OI)
R878
D889 CURSOR (SEC)
D877 SEC(IO)
R876
D876 MIN(OI)
D887 CURSOR (MIN)
D875 MIN(IO)
R874
INDEX(IO)
D873
D874 INDEX(OI)
D886 CURSOR (INDEX)
D872 TRACK(OI)
D885 CURSOR (TRACK)
R872
D871 TRACK(IO)
R871
D881 ERROR
R884
CN871
CN754
R879
R877
R875
R873
J
IC880
IC879
IC878
IC877
IC876
IC875
IC874
IC873
IC872
IC871

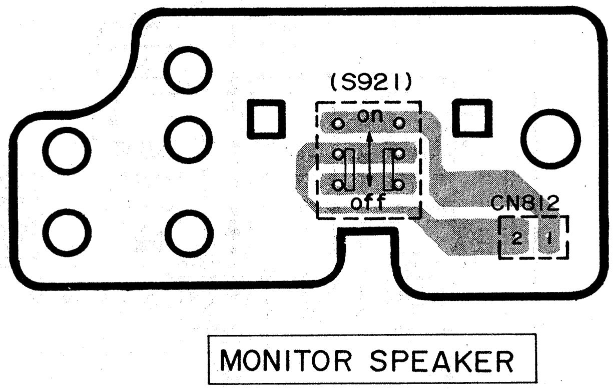
26 (Headphone P.C.B.)


HEADPHONE
U-994V-1
CN813
L
E
R
1
2
3
SRDP050N26

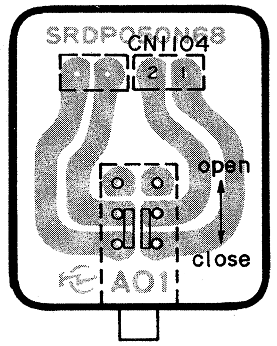
66 (Monitor VR P.C.B.)


CN1112
CN1111
CN810
CN809
VR911
VR911-1
VR911-2
MONITOR LEVEL

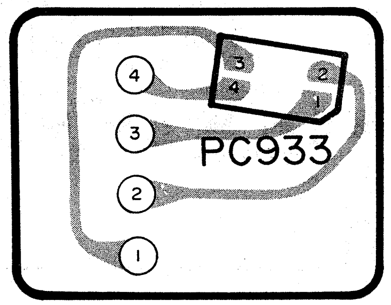
65 (Speaker SW P.C.B.)


(S921)
on
off
CN812
MONITOR SPEAKER

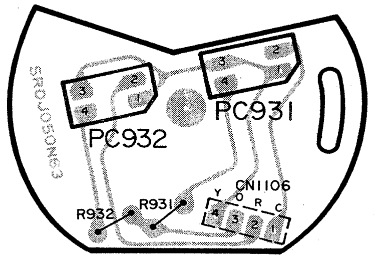
68 (Door SW P.C.B.)


SRDP050N68
CN1104
open
close
A01

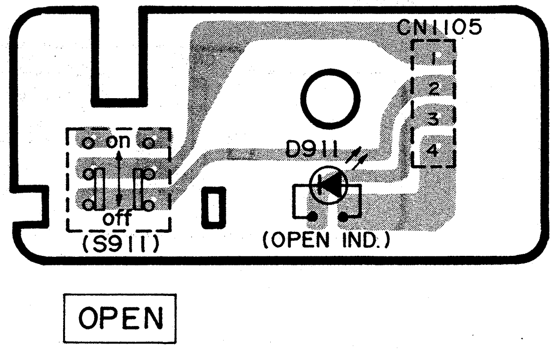
64 (Disc det. P.C.B.)



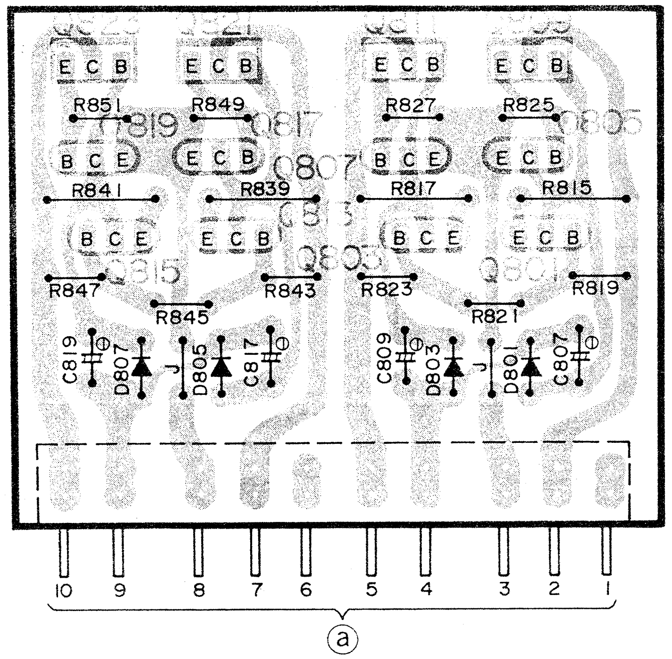
63 (Search det. P.C.B.)


SRDJ050N63
PC932
PC931
CN1106
R932
R931

62 (Open SW P.C.B.)

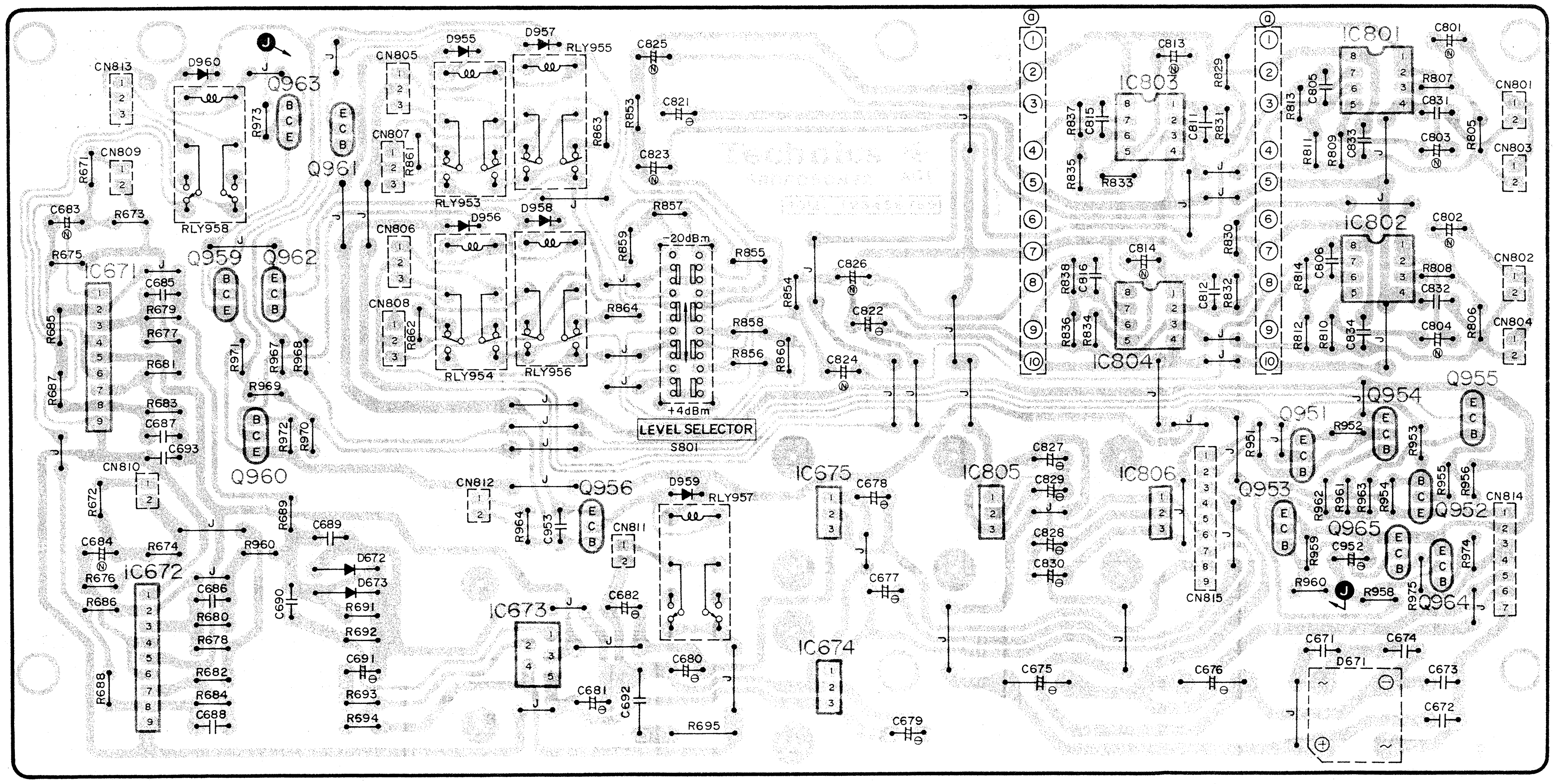

CN1105
1
2
3
4
on
off
(S911)
D911
(OPEN IND.)
OPEN

24 (Lineout module)



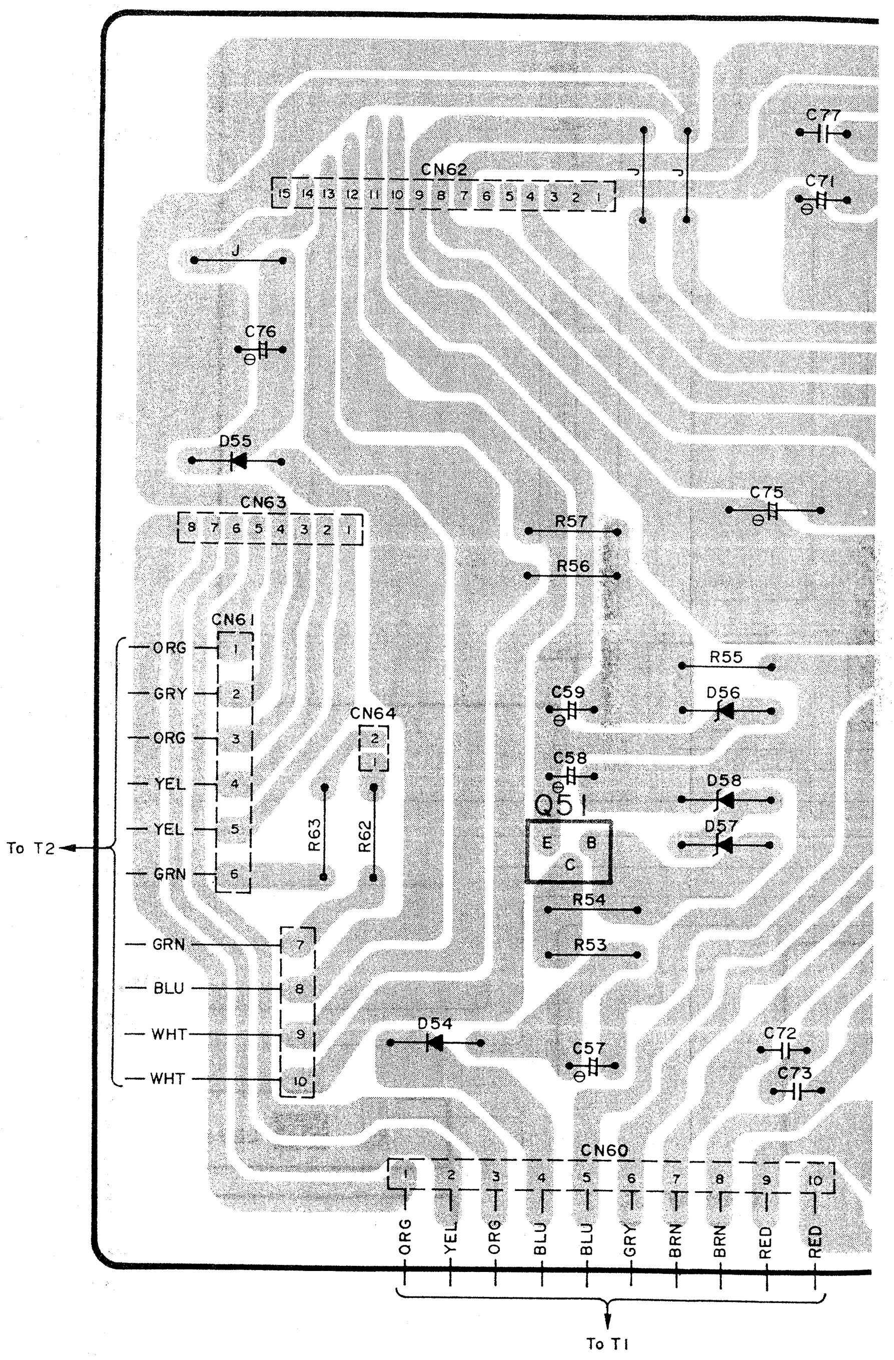
Q819
Q817
Q807
Q805
Q815
Q803
Q801
R851
R849
R827
R825
R841
R839
R817
R815
R847
R843
R823
R819
R845
R821
C819
D807
D805
C817
C809
D803
D801
C807
E C B
B C E
10 9 8 7 6 5 4 3 2 1
ⓐ

22 (Lineout P.C.B.)



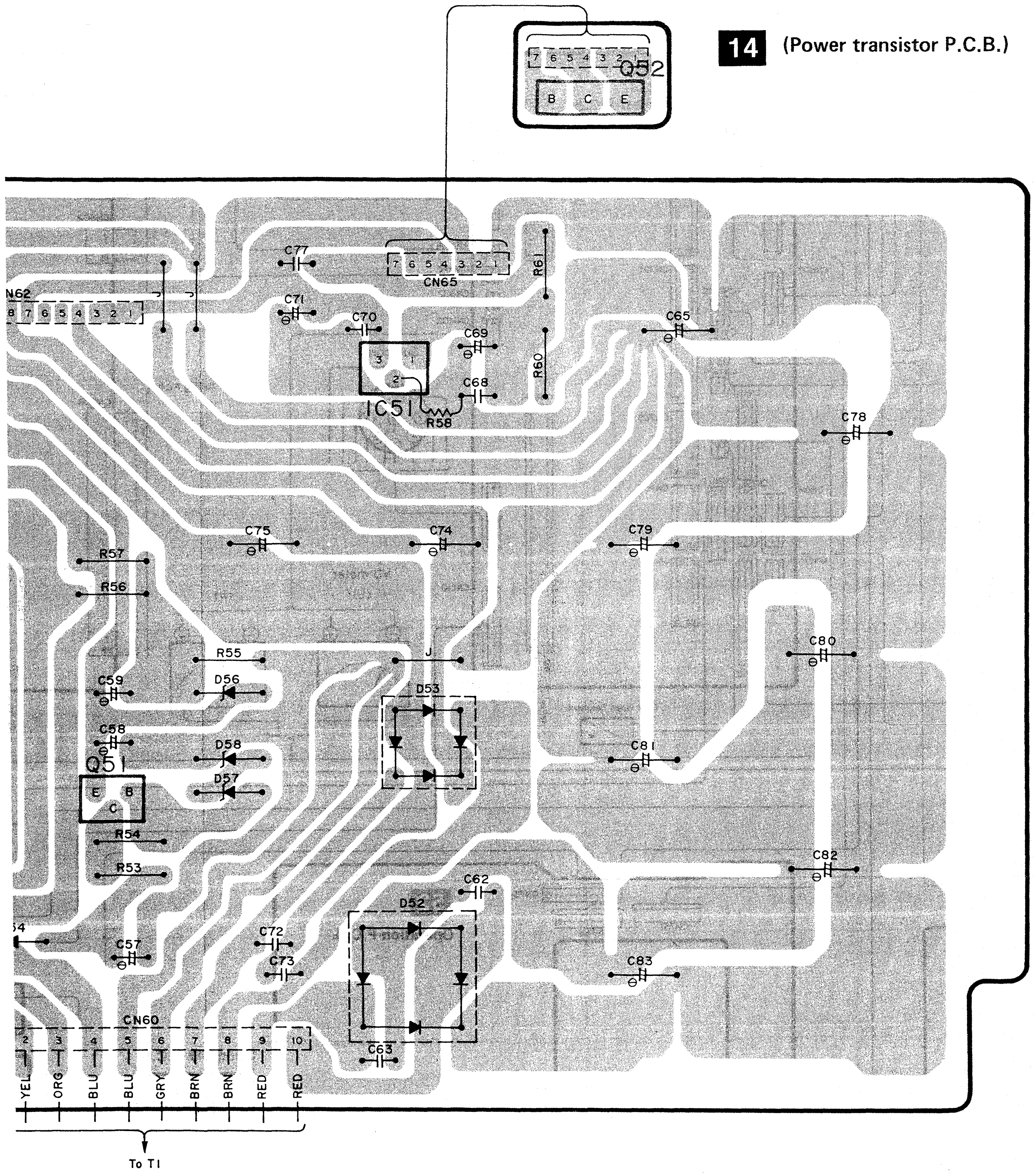
CN813
D960
Q963
Q961
RLY958
CN809
C683
R673
R675
IC671
Q959
Q962
Q960
CN810
IC672
CN805
CN807
CN806
CN808
D955
D957
RLY955
RLY953
D956
D958
RLY954
RLY956
C825
C821
C823
R857
-20dBm
+4dBm
LEVEL SELECTOR
S801
CN812
Q956
CN811
D959
RLY957
IC673
IC674
IC675
IC805
IC806
IC801
IC802
IC803
IC804
CN801
CN802
CN803
CN804
CN814
CN815
Q951
Q952
Q953
Q954
Q955
Q964
Q965
D671
C671
C672
C673
C674
C675
C676
C679
R695

10 (Power source P.C.B.)



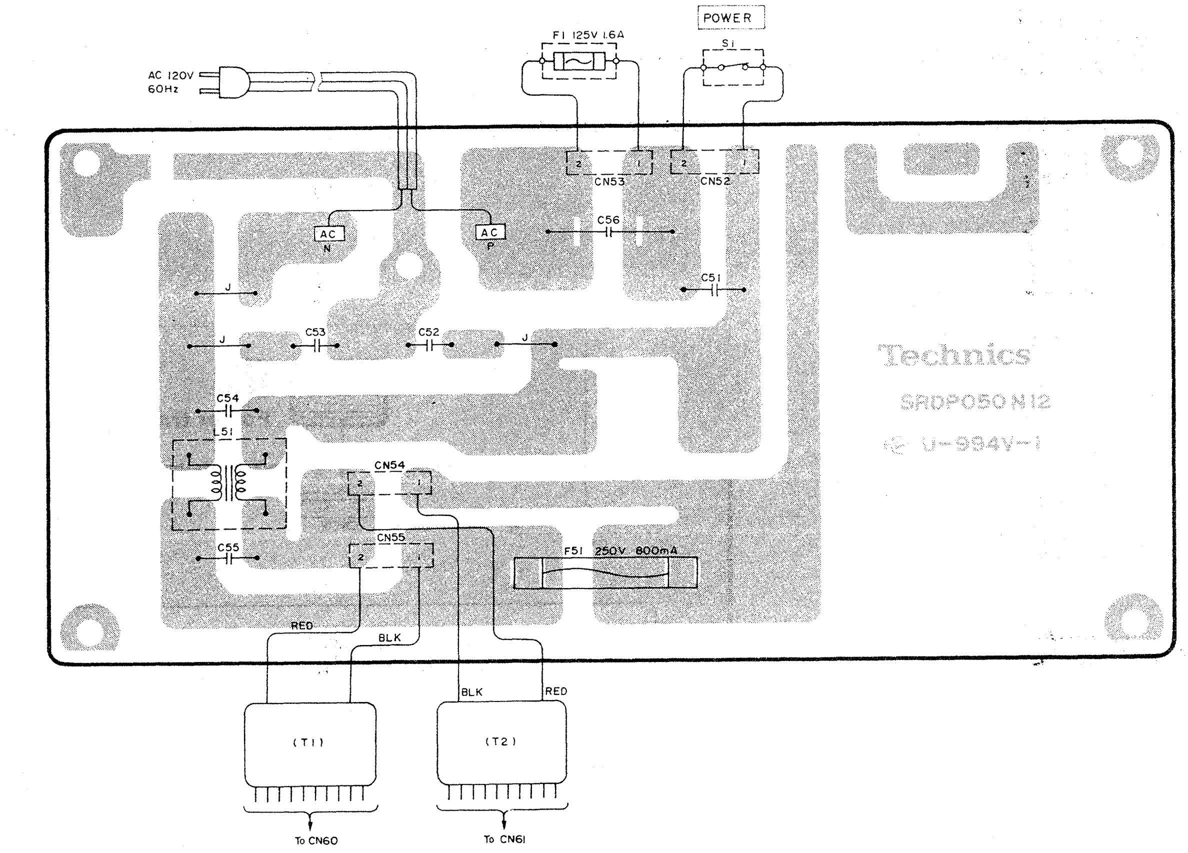
C77
C71
CN62
15 14 13 12 11 10 9 8 7 6 5 4 3 2 1
C76
D55
CN63
8 7 6 5 4 3 2 1
C75
R57
R56
CN61
R55
CN64
C59
D56
C58
D58
Q51
E B C
D57
R63
R62
R54
R53
To T2
ORG
GRY
ORG
YEL
YEL
GRN
GRN
BLU
WHT
WHT
D54
C57
C72
C73
CN60
1 2 3 4 5 6 7 8 9 10
ORG
YEL
ORG
BLU
BLU
GRY
BRN
BRN
RED
RED
To T1

14 (Power transistor P.C.B.)


Q52
7 6 5 4 3 2 1
B C E
C77
CN65
N62
8 7 6 5 4 3 2 1
C71
C70
IC51
R58
C69
C68
R61
R60
C65
C78
C75
C74
C79
R57
R56
R55
D56
C59
C58
D58
D57
Q51
E B C
R54
R53
C80
J
D53
C81
C82
C62
D52
C57
C72
C73
C63
C83
CN60
2 3 4 5 6 7 8 9 10
YEL ORG BLU BLU GRY BRN BRN RED RED
To T1

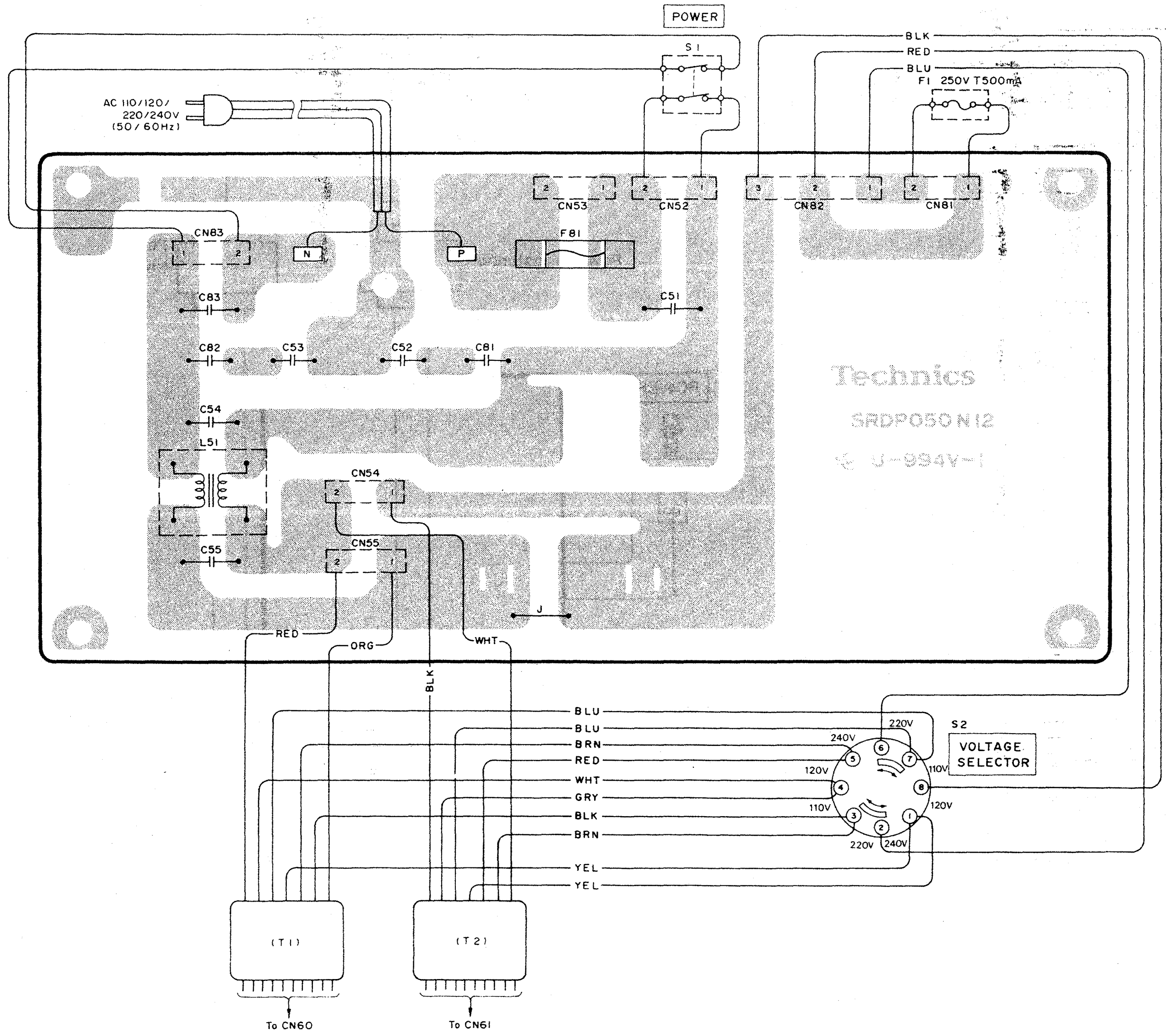
- Power source (primary side) P.C.B. (For U.S.A. and Canada.)

12

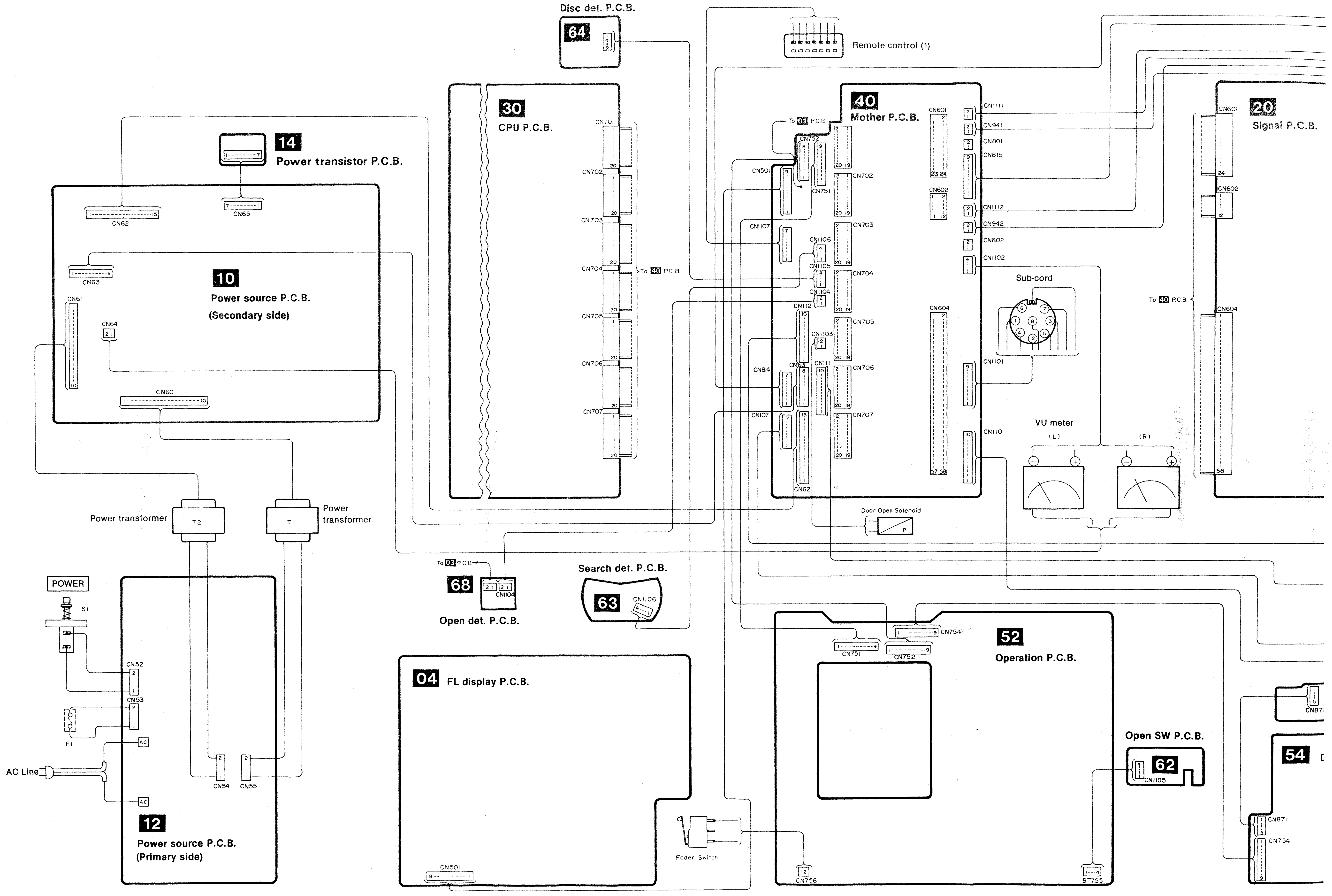

AC 120V 60Hz
F1 125V 1.6A
POWER
S1
CN53
CN52
AC N
AC P
C56
C51
J
C53
C52
C54
L51
CN54
CN55
C55
F51 250V 800mA
Technics
SRDP050N12
U-994V-1
RED
BLK
BLK
RED
(T1)
(T2)
To CN60
To CN61

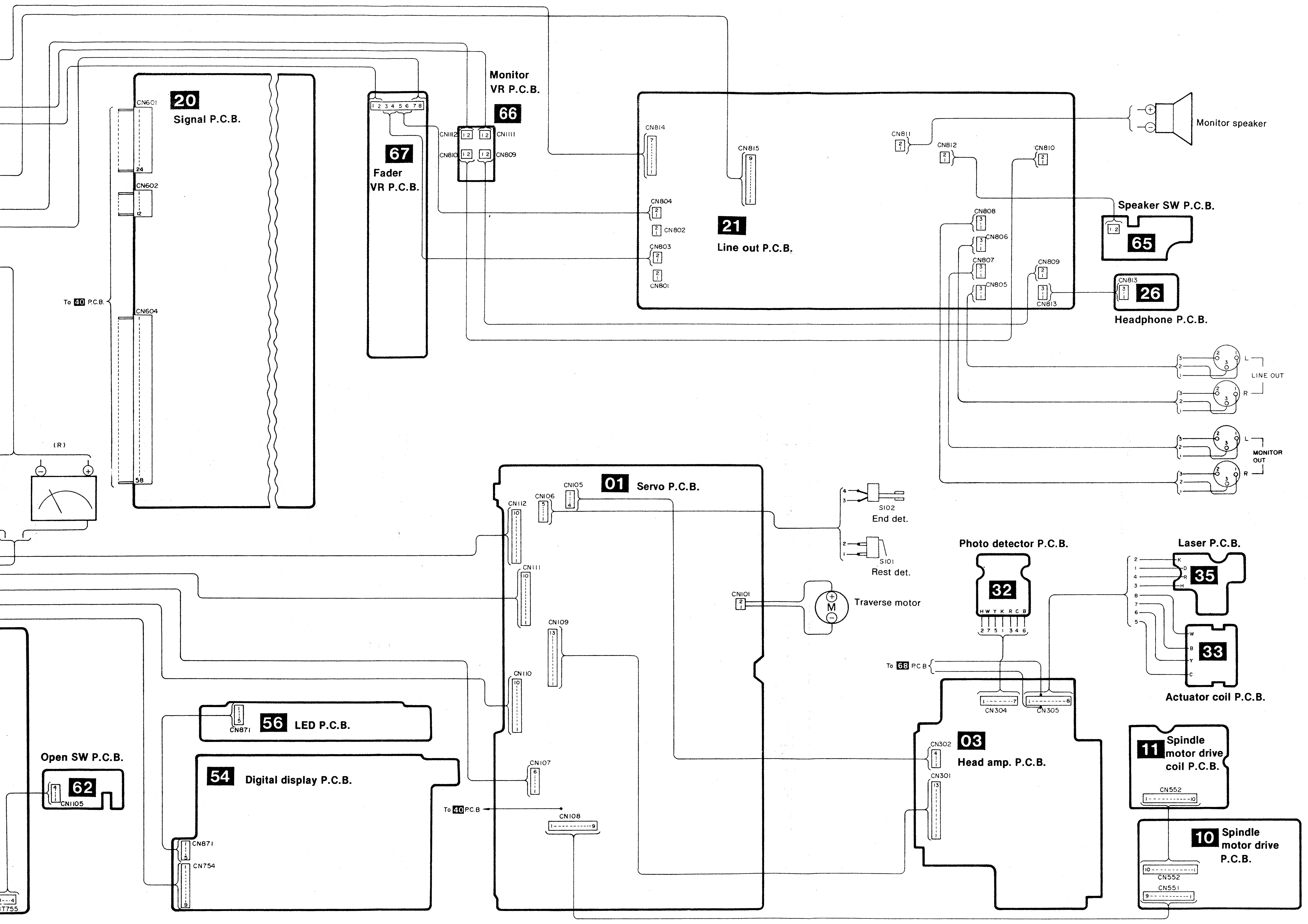
- Power source (primary side) P.C.B. (For others.)

12

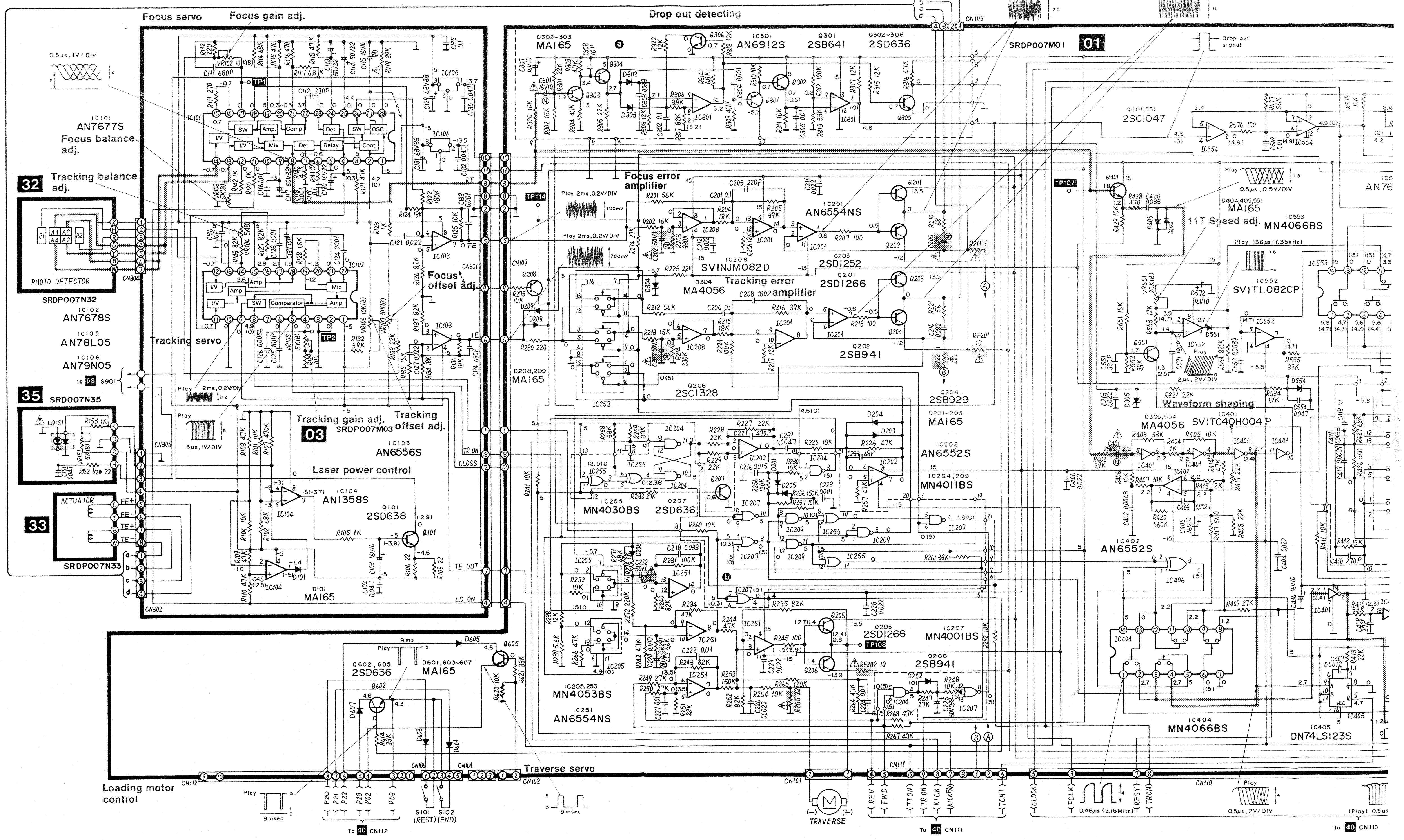

POWER
S1
BLK
RED
BLU
F1 250V T500mA
AC 110/120/220/240V (50/60Hz)
CN53
CN52
CN82
CN81
CN83
N
P
F81
C83
C51
C82
C53
C52
C81
C54
L51
CN54
CN55
C55
Technics
SRDP050N12
U-994V-1
J
RED
ORG
WHT
BLK
BLU
BLU
BRN
RED
WHT
GRY
BLK
BRN
YEL
YEL
S2
VOLTAGE SELECTOR
220V
240V
110V
120V
120V
110V
220V
240V
(T1)
(T2)
To CN60
To CN61

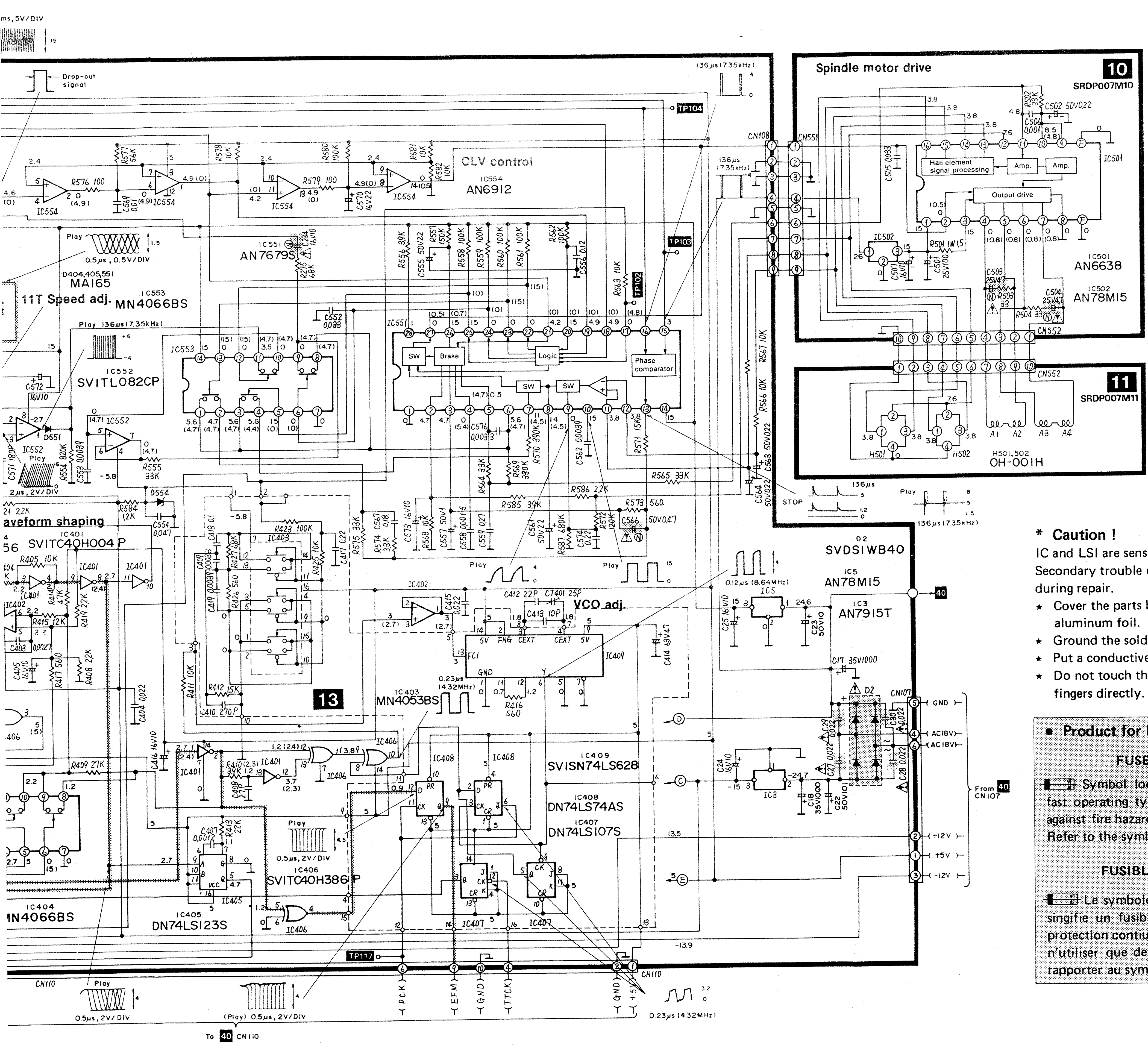
I PRNITED CIRCUIT BOARD AND WIRING CONNECTION DIAGRAM


Disc det. P.C.B.
64
Remote control (1)
30
CPU P.C.B.
CN701
CN702
CN703
CN704
CN705
CN706
CN707
To 40 P.C.B.
40
Mother P.C.B.
To 01 P.C.B
CN752
CN751
CN501
CN1107
CN1106
CN1105
CN1104
CN112
CN1103
CN814
CN111
CN107
CN62
CN601
CN602
CN604
CN1111
CN941
CN801
CN815
CN1112
CN942
CN802
CN1102
CN1101
CN1110
Sub-cord
VU meter
(L)
(R)
Door Open Solenoid
20
Signal P.C.B.
To 40 P.C.B.
14
Power transistor P.C.B.
CN62
CN65
CN63
10
Power source P.C.B.
(Secondary side)
CN61
CN64
CN60
Power transformer
T2
T1
Power
transformer
POWER
S1
CN52
CN53
F1
AC
AC Line
CN54
CN55
12
Power source P.C.B.
(Primary side)
To 03 P.C.B.
68
CN1104
Open det. P.C.B.
Search det. P.C.B.
63
CN1106
04
FL display P.C.B.
CN501
Foder Switch
52
Operation P.C.B.
CN754
CN751
CN752
CN756
BT755
Open SW P.C.B.
62
CN1105
54
CN871
CN754


Monitor VR P.C.B.
66
20
Signal P.C.B.
CN601
CN602
CN604
To 40 P.C.B.
(R)
67
Fader VR P.C.B.
CN1112
CN1111
CN810
CN809
21
Line out P.C.B.
CN814
CN815
CN811
CN812
CN810
CN804
CN802
CN803
CN801
CN808
CN806
CN807
CN805
CN809
CN813
Monitor speaker
Speaker SW P.C.B.
65
26
Headphone P.C.B.
LINE OUT
MONITOR OUT
L
R
01
Servo P.C.B.
CN105
CN106
CN112
CN111
CN109
CN110
CN107
CN108
CN101
S102
End det.
S101
Rest det.
Traverse motor
Photo detector P.C.B.
32
H W Y K R C B
2 7 5 1 3 4 6
Laser P.C.B.
35
33
Actuator coil P.C.B.
To 68 P.C.B.
CN304
CN305
03
Head amp. P.C.B.
CN302
CN301
11
Spindle motor drive coil P.C.B.
CN552
10
Spindle motor drive P.C.B.
CN552
CN551
56
LED P.C.B.
CN871
54
Digital display P.C.B.
CN871
CN754
To 40 P.C.B.
Open SW P.C.B.
62
CN1105
T755

• Head amp. and servo circuit


1
2
3
4
5
6
7
8
9
10
Focus servo
Focus gain adj.
Drop out detecting
0.5μs, 1V/DIV
IC101
AN7677S
Focus balance adj.
32
Tracking balance adj.
PHOTO DETECTOR
SRDP007N32
IC102
AN7678S
IC105
AN78L05
IC106
AN79N05
To 68 S901
35
SRD007N35
ACTUATOR
33
SRDP007N33
Tracking servo
Tracking gain adj.
Tracking offset adj.
03
SRDP007M03
Focus offset adj.
IC103
AN6556S
Laser power control
IC104
AN1358S
Q101
2SD638
D101
MA165
CN302
CN304
CN305
FE
TE
TR ON
CLOSS
TE OUT
LD ON
D302~303
MA165
IC301
AN6912S
Q301
2SB641
Q302~306
2SD636
SRDP007M01
01
Drop-out signal
Play 2ms, 5V/DIV
Focus error amplifier
Play 2ms, 0.2V/DIV
IC201
AN6554NS
IC208
SVINJM082D
D304
MA4056
Tracking error amplifier
Q201
2SD1266
Q202
2SB941
Q203
2SD1252
Q204
2SB929
D201~206
MA165
Q208
2SC1328
IC253
D208, 209
MA165
TP114
TP107
TP1
TP2
TP108
IC202
AN6552S
IC204, 209
MN4011BS
IC255
MN4030BS
Q207
2SD636
IC205, 253
MN4053BS
IC251
AN6554NS
Q205
2SD1266
Q206
2SB941
IC207
MN4001BS
Q401, 551
2SC1047
IC554
Q401
D404, 405, 551
MA165
11T Speed adj.
IC553
MN4066BS
Play 136μs (7.35kHz)
IC552
SVITL082CP
Waveform shaping
D305, 554
MA4056
IC401
SVITC40H004P
IC402
AN6552S
IC406
IC404
MN4066BS
IC405
DN74LS123S
Q602, 605
2SD636
D601, 603~607
MA165
Play 9ms
Traverse servo
Loading motor control
CN112
CN106
CN104
CN102
CN101
CN111
CN110
P20 P21 P22 P23 P02 P03
S101 (REST)
S102 (END)
To 40 CN112
9msec
(−) M (+)
TRAVERSE
REV FWD TTON TRON KICK KICKF/R TCNT
To 40 CN111
CLOCK FCLK RESY TRON
0.46μs (2.16MHz)
Play 0.5μs, 2V/DIV
To 40 CN110


10
11
12
13
14
15
16
17
18
Drop-out signal
TP104
CLV control
IC554 AN6912
IC551 AN7679S
TP103
TP102
IC553 MN4066BS
11T Speed adj.
D404,405,551 MA165
IC552 SVITL082CP
IC551
SW
Brake
Logic
Phase comparator
Spindle motor drive
10
SRDP007M10
Hall element signal processing
Amp.
Output drive
IC501 AN6638
IC502 AN78M15
CN551
CN552
CN108
11
SRDP007M11
H501,502 OH-001H
STOP
Play
aveform shaping
IC401 SVITC40H004 P
IC403 MN4053BS
13
VCO adj.
IC409
D2 SVDS1WB40
IC5 AN78M15
IC3 AN7915T
CN107
GND
AC18V
AC18V
+12V
+5V
-12V
From 40 CN107
IC409 SVISN74LS628
IC408 DN74LS74AS
IC407 DN74LS107S
IC406 SVITC40H386P
IC404 MN4066BS
IC405 DN74LS123S
TP117
CN110
PCK
EFM
GND
TTCK
GND
+5V
To 40 CN110
0.5μs, 2V/DIV
(Play) 0.5μs, 2V/DIV
0.23μs (4.32MHz)
136μs (7.35kHz)
0.12μs (8.64MHz)

■ SCHEMATIC DIAGRAM

Notes:

1. **S1** : Power switch.
2. **S2** : Voltage selector switch. (Except for [M], [MC] areas.)
3. **S101** : Rest switch. (Disc innermost position detection).
4. **S102** : End switch. (Disc outside detection).
5. **S701** : Mode selector switch.
6. **S751** : Start location switch.
7. **S752** : Cursor switch.
8. **S753, S754, S757, S758, S762, S763, S767, S768, S770, S771** : Numeric switch (No. 0 ~9).
9. **S755** : Stop switch.
10. **S756** : Actual location switch.
11. **S759** : Clear switch.
12. **S760** : Monitor play switch.
13. **S761** : Track remaining time switch.
14. **S764** : Search switch.
15. **S765** : Standby switch.
16. **S766** : Disc remaining time switch.
17. **S769** : Cursor switch.
18. **S781** : On line play switch.
19. **S782** : On line stop switch.
20. **S786** : Fader start switch.
21. **S787** : Fader on switch.
22. **S801** : Level selector switch.
23. **S901** : Door detection switch.
24. **S911** : Open switch.
25. **S921** : Speaker switch.
26. This schematic diagram may be modified at any time with the development of new technology.
27. The voltage value, and waveforms are the reference voltage of this unit measured by DC electronic voltmeter (high impedance) and oscilloscope on the basis of chassis. Accordingly, there may arise some error in the voltage values and waveforms depending upon the internal impedance of the tester or the measuring unit.
    - * The parenthesized are the values of voltage generated during playing. Others are the voltage values in stop mode.
28. Part No. with ✪ mark are not idential between regular part No. and repair part No. supplied. So, when placing an order for repair parts, use the part No. in the replacement part list of repair parts.
29. ——— : +B, –B voltage lines ▒▒▷ : Audio signal lines
30. Important safety notice: Components identified by ⚠ mark have special characteristics important for safety.

* Caution !

IC and LSI are sensitive to static electricity. Secondary trouble can be prevented by taking care during repair.

- ★ Cover the parts boxes made of plastics with aluminum foil.
- ★ Ground the soldering iron.
- ★ Put a conductive mat on the work table.
- ★ Do not touch the legs of IC or LSI with the fingers directly.

• Product for MC only

FUSE REPLACEMENT

Symbol located near the fuse indicates fast operating type. For continued protection against fire hazard, replace with same type fuse. Refer to the symbol for fuse rating.

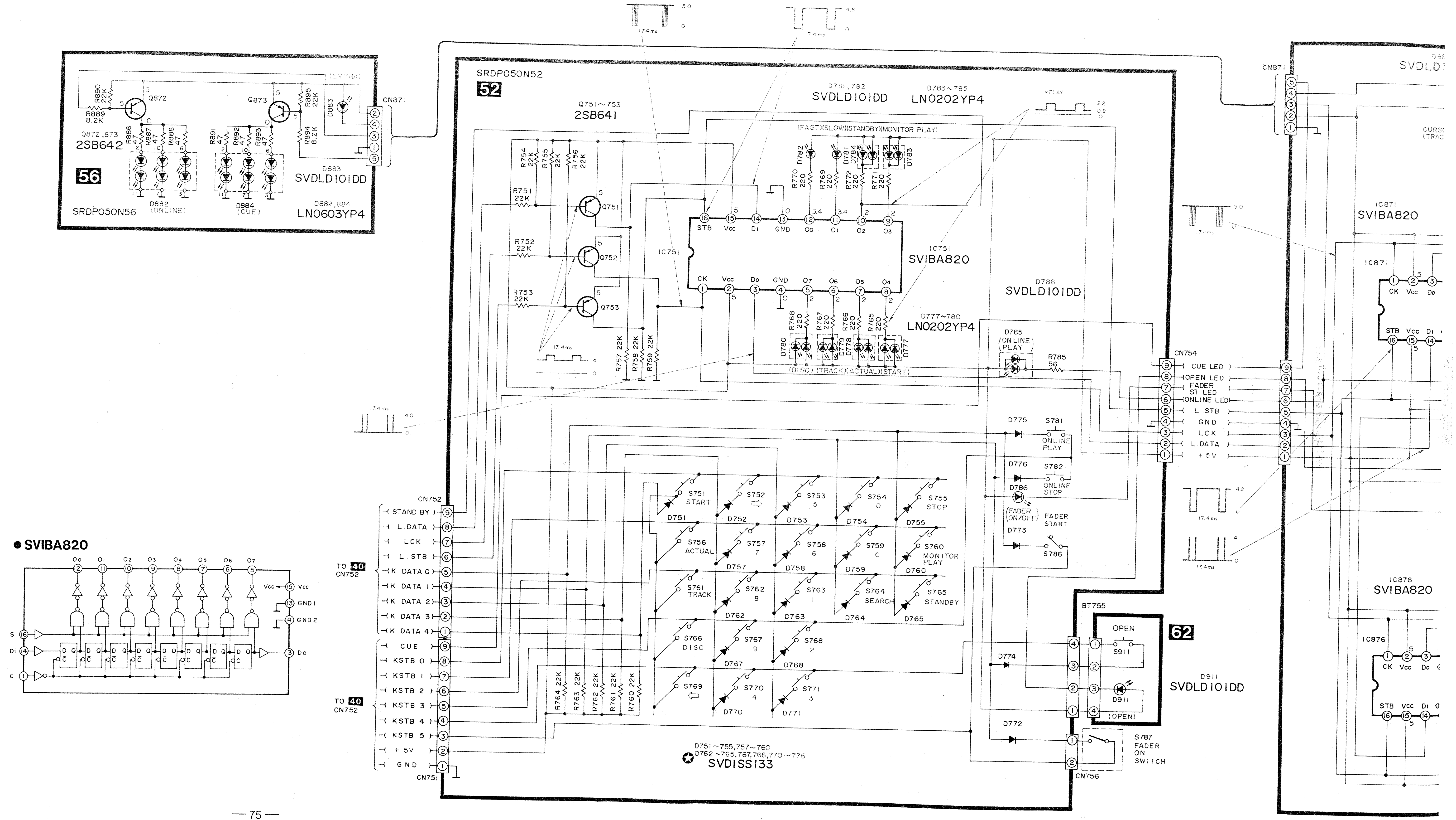
FUSIBLE REMPLACEMENT

Le symbole qui se trouve près du fusible singifie un fusible à action rapide. Pour une protection contiue contre les risques d'incendie, n'utiliser que des fusibles du même type. Se rapporter au symbole pour la valeur des fusibles.

IMPORTANT SAFETY NOTICE

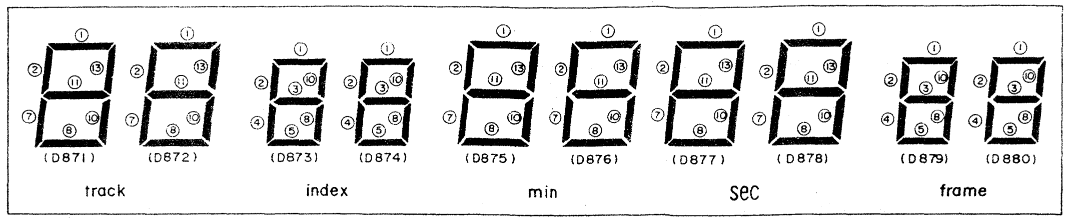
The shaded area on this schematic diagram incorporates special features important for protection from fire and electrical shock hazards. When servicing it is essential that only manufacturer's specified parts be used for the critical components in the shaded areas of the schematic.

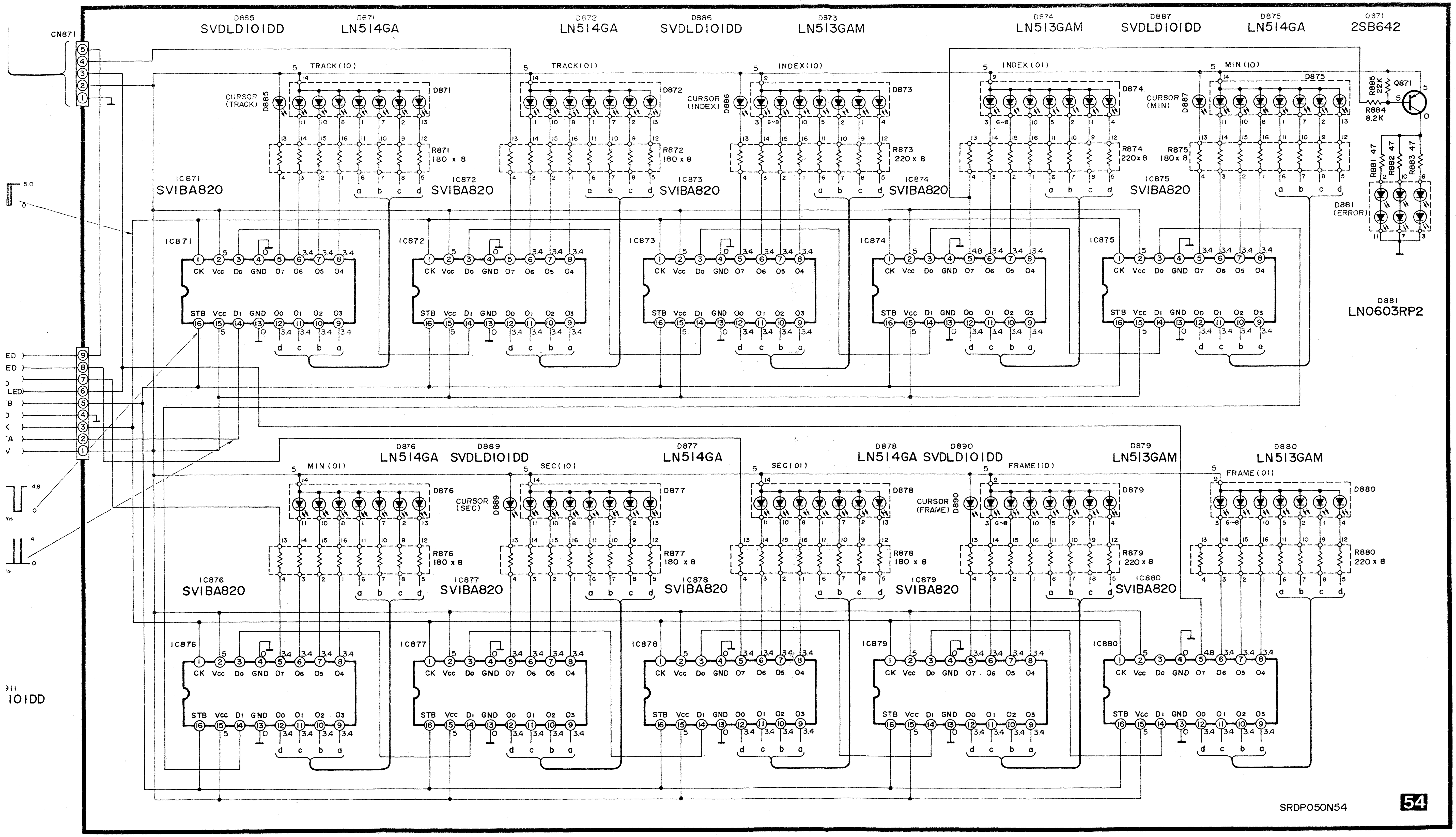
- **Opration circuit and digital display circuit**



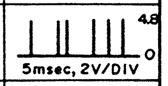
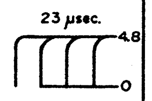
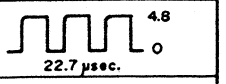
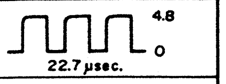
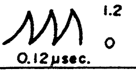
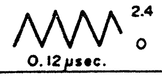
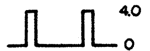
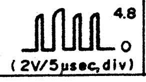
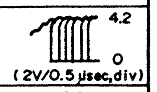
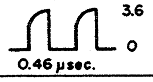
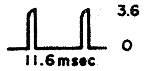
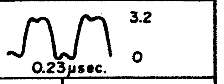
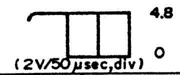
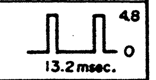
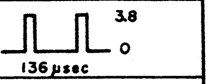
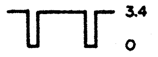
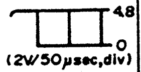
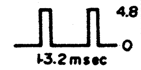
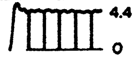
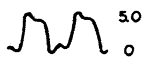
1
2
3
4
5
6
7
8
9
10
SRDP050N56
56
Q872
Q873
Q872,873
2SB642
R889 8.2K
R890 22K
R895 22K
R894 8.2K
R886 47
R887 47
R888 47
R891 47
R892 47
R893 47
D883
SVLD101DD
D882 (ONLINE)
D884 (CUE)
D882,884
LN0603YP4
(EMPHA)
CN871
SRDP050N52
52
Q751~753
2SB641
Q751
Q752
Q753
R751 22K
R752 22K
R753 22K
R754 22K
R755 22K
R756 22K
R757 22K
R758 22K
R759 22K
IC751
SVIBA820
STB
Vcc
DI
GND
O0
O1
O2
O3
CK
Do
O7
O6
O5
O4
D781,782
SVDLD101DD
D783~785
LN0202YP4
(FAST)(SLOW)(STANDBY)(MONITOR PLAY)
R770 220
R769 220
R772 220
R771 220
R768 220
R767 220
R766 220
R765 220
(DISC) (TRACK)(ACTUAL)(START)
D777~780
LN0202YP4
D786
SVDLD101DD
D785 (ON LINE PLAY)
R785 56
17.4ms
5.0
4.8
4.0
0
+PLAY
CN754
CUE LED
OPEN LED
FADER ST LED
ONLINE LED
L.STB
GND
LCK
L.DATA
+5V
D775
S781 ONLINE PLAY
D776
S782 ONLINE STOP
D786
(FADER ON/OFF)
FADER START
D773
S786
CN752
STAND BY
L.DATA
LCK
L.STB
K DATA 0
K DATA 1
K DATA 2
K DATA 3
K DATA 4
TO 40 CN752
CUE
KSTB 0
KSTB 1
KSTB 2
KSTB 3
KSTB 4
KSTB 5
+5V
GND
CN751
S751 START
S752 ⇨
S753 5
S754 0
S755 STOP
S756 ACTUAL
S757 7
S758 6
S759 C
S760 MONITOR PLAY
S761 TRACK
S762 8
S763 1
S764 SEARCH
S765 STANDBY
S766 DISC
S767 9
S768 2
S769 ⇦
S770 4
S771 3
D751
D752
D753
D754
D755
D757
D758
D759
D760
D762
D763
D764
D765
D767
D768
D770
D771
R764 22K
R763 22K
R762 22K
R761 22K
R760 22K
D751~755,757~760
D762~765,767,768,770~776
SVDISS133
BT755
62
OPEN
S911
D911
(OPEN)
D911
SVDLD101DD
D774
D772
S787 FADER ON SWITCH
CN756
CN871
SVDLD
IC871
SVIBA820
CK
Vcc
Do
STB
DI
CURS
(TRAC
IC876
SVIBA820
SVIBA820
O0
O1
O2
O3
O4
O5
O6
O7
Vcc
GND1
GND2
S
Di
C
D Q
C̄
Do

- Digital display

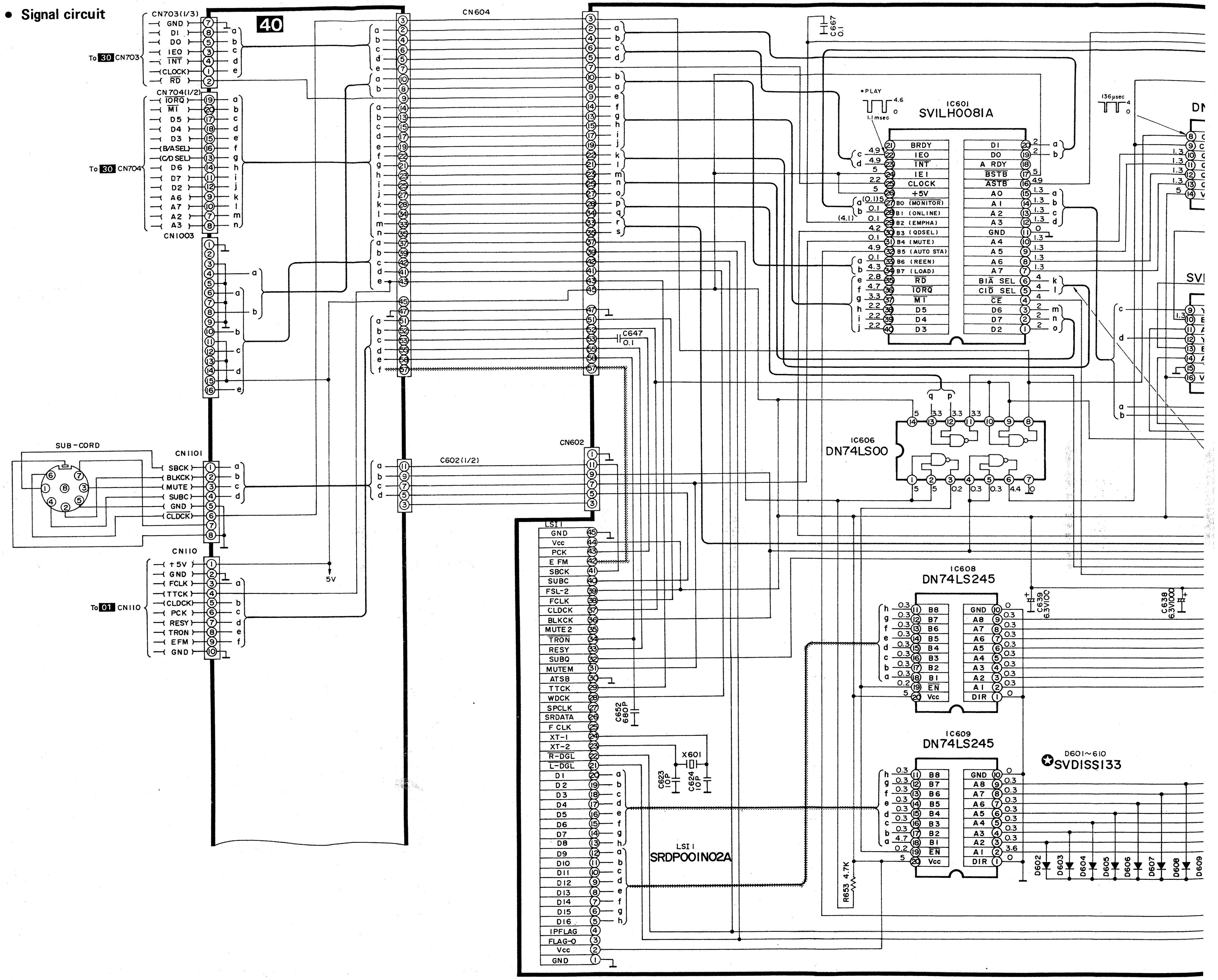

(D871)
(D872)
(D873)
(D874)
(D875)
(D876)
(D877)
(D878)
(D879)
(D880)
track
index
min
sec
frame

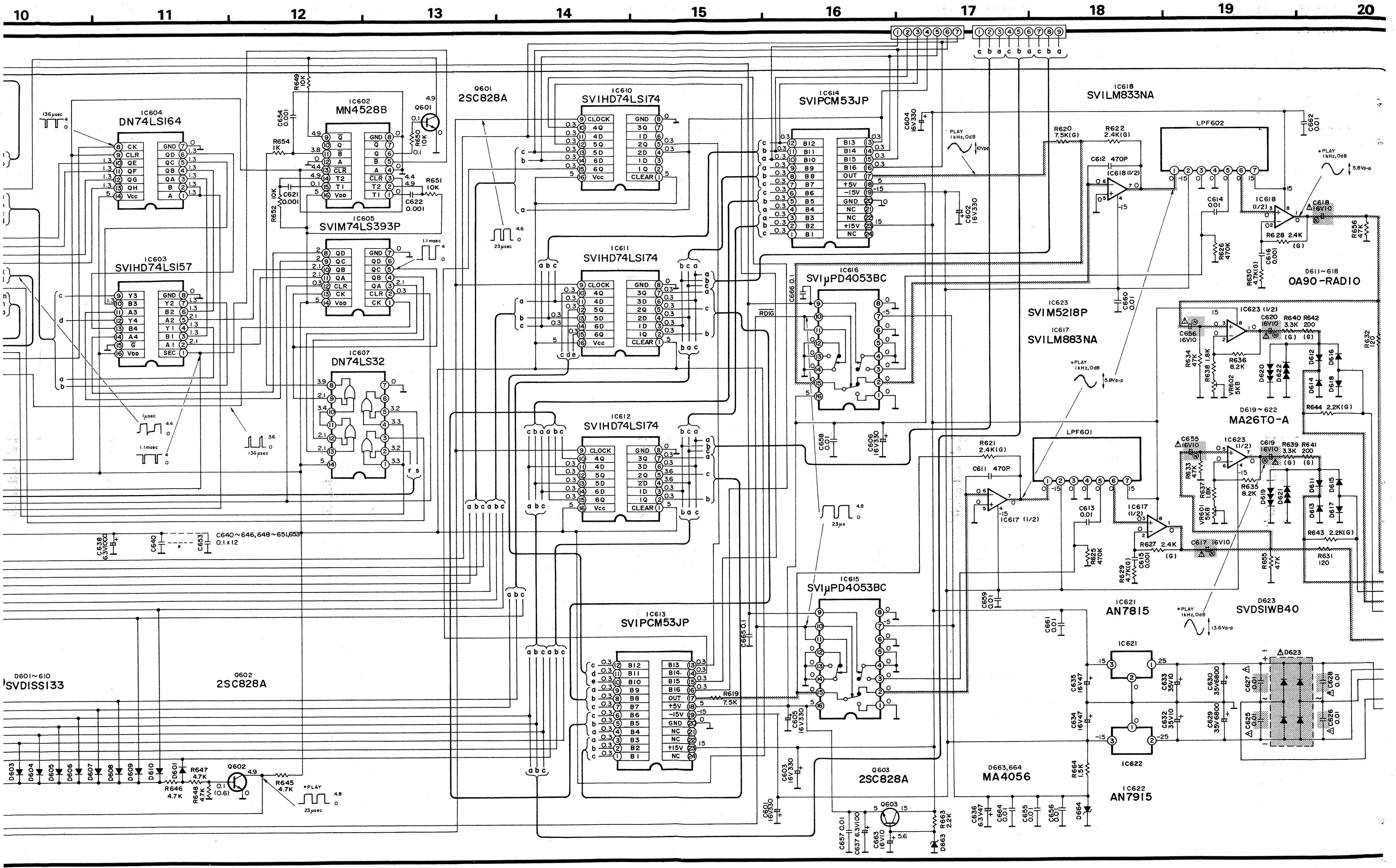

CN871
D885 SVDLD101DD
D871 LN514GA
D872 LN514GA
D886 SVDLD101DD
D873 LN513GAM
D874 LN513GAM
D887 SVDLD101DD
D875 LN514GA
Q871 2SB642
TRACK(10)
TRACK(01)
INDEX(10)
INDEX(01)
MIN(10)
CURSOR (TRACK)
CURSOR (INDEX)
CURSOR (MIN)
R871 180 x 8
R872 180 x 8
R873 220 x 8
R874 220x8
R875 180x8
R885 22K
R884 8.2K
R881 47
R882 47
R883 47
D881 (ERROR)
D881 LN0603RP2
IC871 SVIBA820
IC872 SVIBA820
IC873 SVIBA820
IC874 SVIBA820
IC875 SVIBA820
CK Vcc Do GND O7 O6 O5 O4
STB Vcc DI GND O0 O1 O2 O3
a b c d
d c b a
D876 LN514GA
D889 SVDLD101DD
D877 LN514GA
D878 LN514GA
D890 SVDLD101DD
D879 LN513GAM
D880 LN513GAM
MIN(01)
SEC(10)
SEC(01)
FRAME(10)
FRAME(01)
CURSOR (SEC)
CURSOR (FRAME)
R876 180 x 8
R877 180 x 8
R878 180 x 8
R879 220 x 8
R880 220 x 8
IC876 SVIBA820
IC877 SVIBA820
IC878 SVIBA820
IC879 SVIBA820
IC880 SVIBA820
ED
ED
LED
911
101DD
SRDP050N54

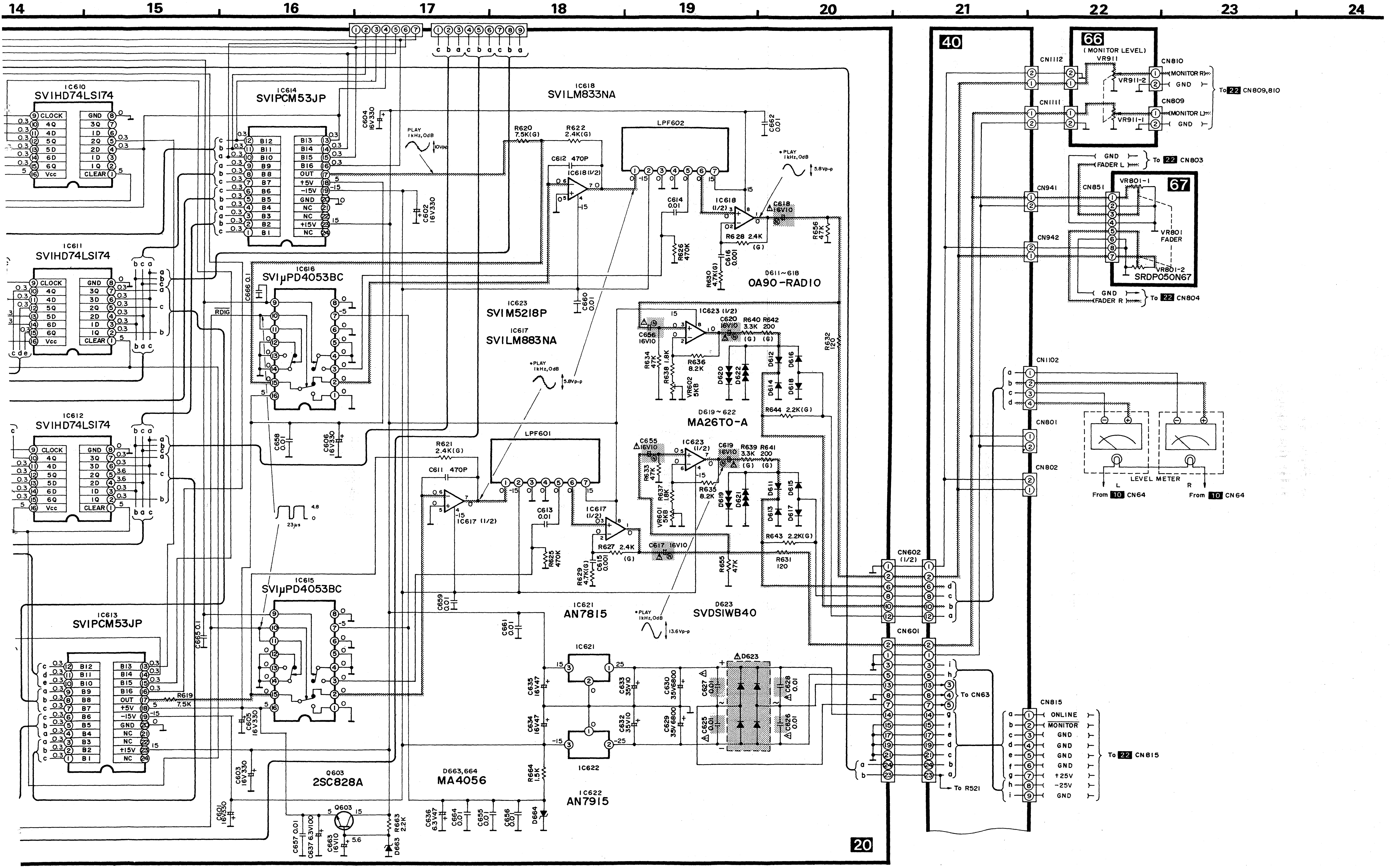
LSI (SRDP001N02A)

NO	STOP	PLAY
1	0	0
2	5	5
3	4.9	
4	4.7	0.2
5 ∫ 20	0.3	
21		
22		
23		
24		
25		
26		
27		
28		
29		
30	0	0
31	0	4.2
32		
33	0.2	4.8
34	5	0.2
35	0.3	4.8
36	0.3	
37		
38		
39	4.9	4.9
40		
41	0.2	0.2
42		
43		
44	4.9	4.9
45	0	0

- **Signal circuit**

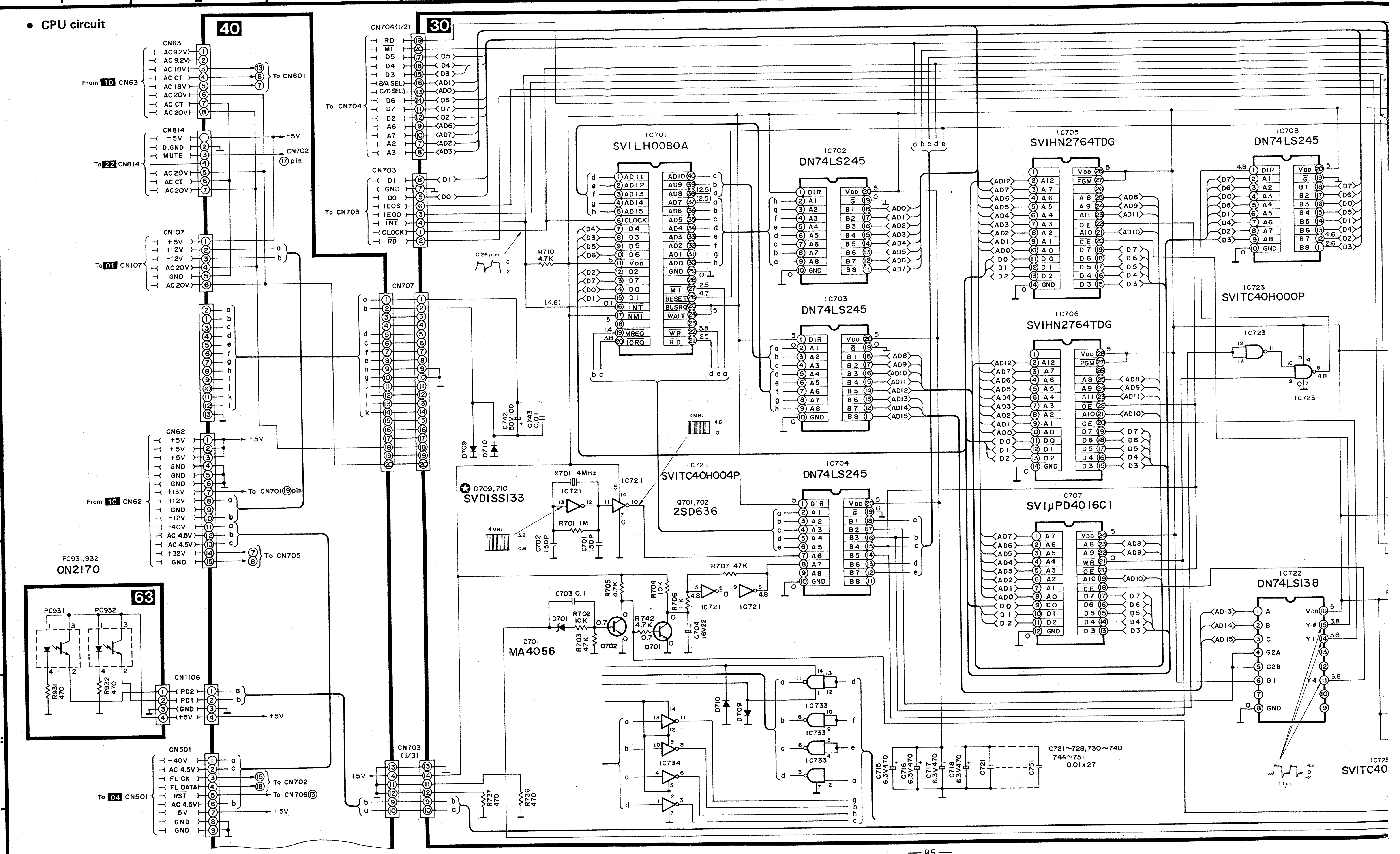

40
CN703(1/3)
To 30 CN703
GND
DI
DO
IEO
INT
CLOCK
RD
CN704(1/2)
To 30 CN704
IORQ
MI
D5
D4
D3
B/ASEL
C/D SEL
D6
D7
D2
A6
A7
A2
A3
CN1003
CN604
SUB-CORD
CN1101
SBCK
BLKCK
MUTE
SUBC
GND
CLDCK
CN110
To 01 CN110
+5V
GND
FCLK
TTCK
CLDCK
PCK
RESY
TRON
EFM
GND
5V
CN602
C602(1/2)
C647 0.1
C667 0.1
•PLAY
4.6
0
1.1msec
IC601
SVILH0081A
BRDY
IEO
INT
IEI
CLOCK
+5V
B0 (MONITOR)
B1 (ONLINE)
B2 (EMPHA)
B3 (QDSEL)
B4 (MUTE)
B5 (AUTO STA)
B6 (REEN)
B7 (LOAD)
RD
IORQ
MI
D5
D4
D3
DI
DO
A RDY
BSTB
ASTB
A0
A1
A2
A3
GND
A4
A5
A6
A7
BIA SEL
CID SEL
CE
D6
D7
D2
136μsec
IC606
DN74LS00
IC608
DN74LS245
IC609
DN74LS245
C639 63V100
C638 63V100
D601~610
SVDISS133
LSI1
SRDP001N02A
GND
Vcc
PCK
E FM
SBCK
SUBC
FSL-2
FCLK
CLDCK
BLKCK
MUTE 2
TRON
RESY
SUBQ
MUTEM
ATSB
TTCK
WDCK
SPCLK
SRDATA
F CLK
XT-1
XT-2
R-DGL
L-DGL
D1
D2
D3
D4
D5
D6
D7
D8
D9
D10
D11
D12
D13
D14
D15
D16
IPFLAG
FLAG-O
Vcc
GND
C652 680P
X601
C623 10P
C624 10P
R653 4.7K
D602
D603
D604
D605
D606
D607
D608
D609

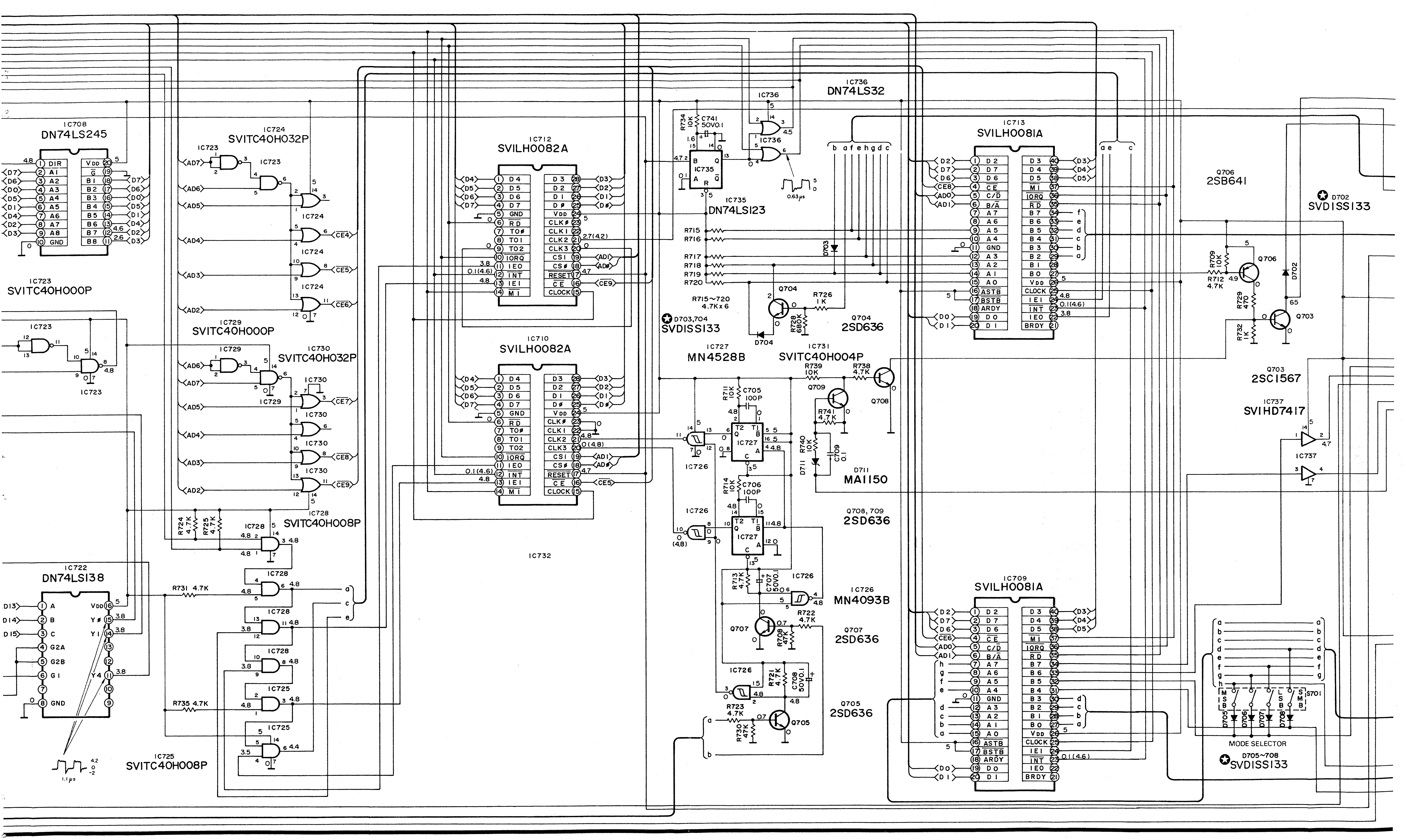

10
11
12
13
14
15
16
17
18
19
20
IC604
DN74LS164
IC603
SVIHD74LS157
IC602
MN4528B
Q601
2SC828A
IC605
SVIM74LS393P
IC607
DN74LS32
IC610
SVIHD74LS174
IC611
SVIHD74LS174
IC612
SVIHD74LS174
IC613
SVIPCM53JP
IC614
SVIPCM53JP
IC616
SVIμPD4053BC
IC615
SVIμPD4053BC
IC618
SVILM833NA
LPF602
LPF601
IC623
SVIM5218P
IC617
SVILM883NA
D611~618
OA90-RADIO
D619~622
MA26TO-A
IC621
AN7815
IC622
AN7915
D623
SVDSIWB40
D601~610
SVDISS133
Q602
2SC828A
Q603
2SC828A
D663,664
MA4056
C640~646,648~651,653
0.1x12
136μsec
1μsec
1.1msec
23μsec
•PLAY 1kHz,0dB
5.8Vp-p
13.6Vp-p
10Vp-p
RDIG

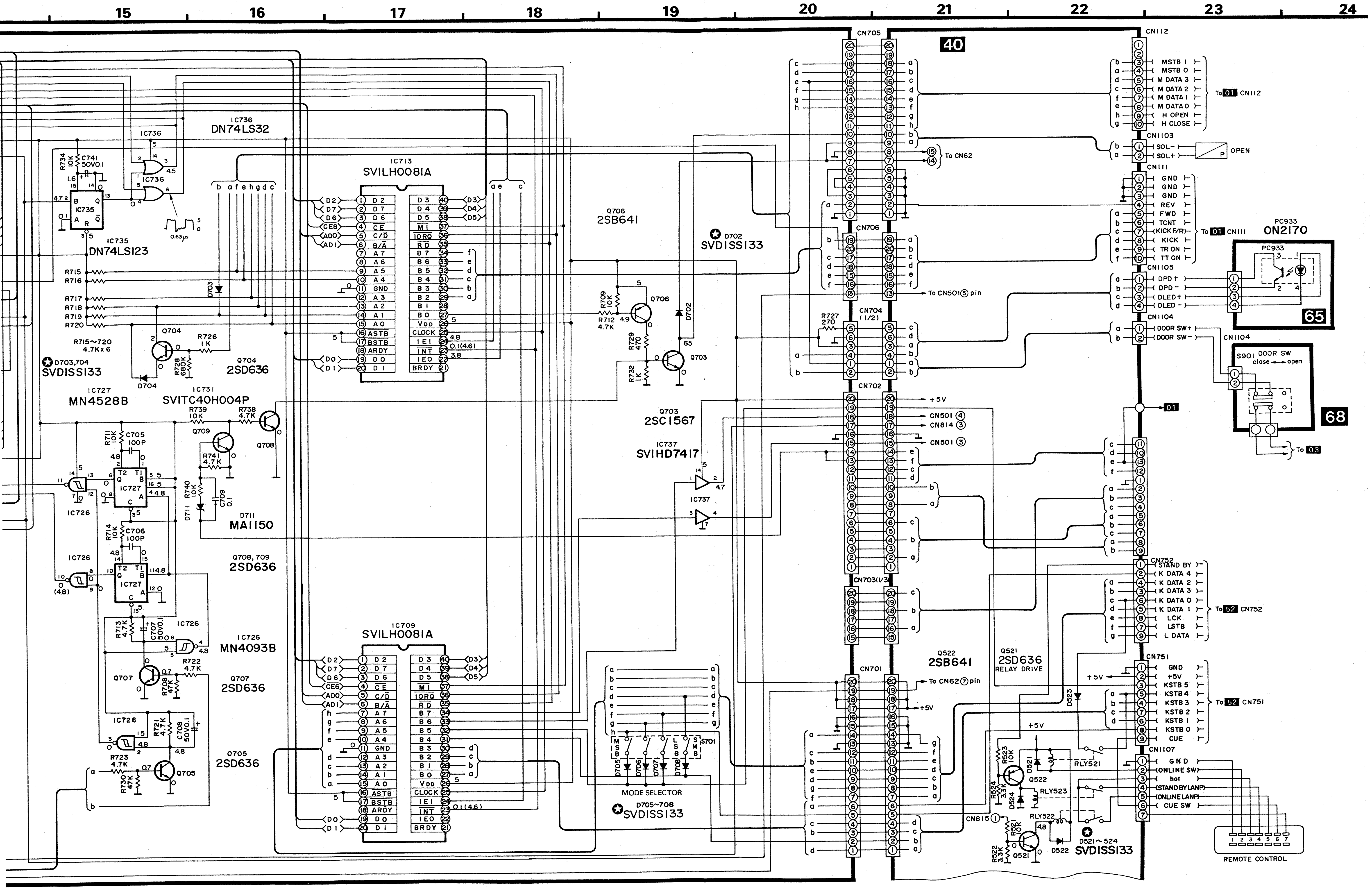


14
15
16
17
18
19
20
21
22
23
24
IC610
SVIHD74LS174
IC611
SVIHD74LS174
IC612
SVIHD74LS174
IC613
SVIPCM53JP
IC614
SVIPCM53JP
IC616
SVIμPD4053BC
IC615
SVIμPD4053BC
IC618
SVILM833NA
IC623
SVIM5218P
IC617
SVILM883NA
LPF602
LPF601
IC621
AN7815
IC622
AN7915
D623
SVDSIWB40
D611~618
OA90-RADIO
D619~622
MA26TO-A
D663,664
MA4056
Q603
2SC828A
PLAY 1kHz,0dB
10Vp-p
5.8Vp-p
13.6Vp-p
23μs
RDIG
CN602 (1/2)
CN601
To CN63
To R521
40
66
(MONITOR LEVEL)
VR911
VR911-1
VR911-2
CN1112
CN1111
CN810
CN809
(MONITOR R)
(MONITOR L)
GND
To 22 CN809,810
(FADER L)
(FADER R)
To 22 CN803
To 22 CN804
67
VR801-1
VR801-2
VR801 FADER
SRDP050N67
CN941
CN942
CN851
CN1102
CN801
CN802
LEVEL METER
L
R
From 10 CN64
From 10 CN64
CN815
ONLINE
MONITOR
+25V
-25V
To 22 CN815
20

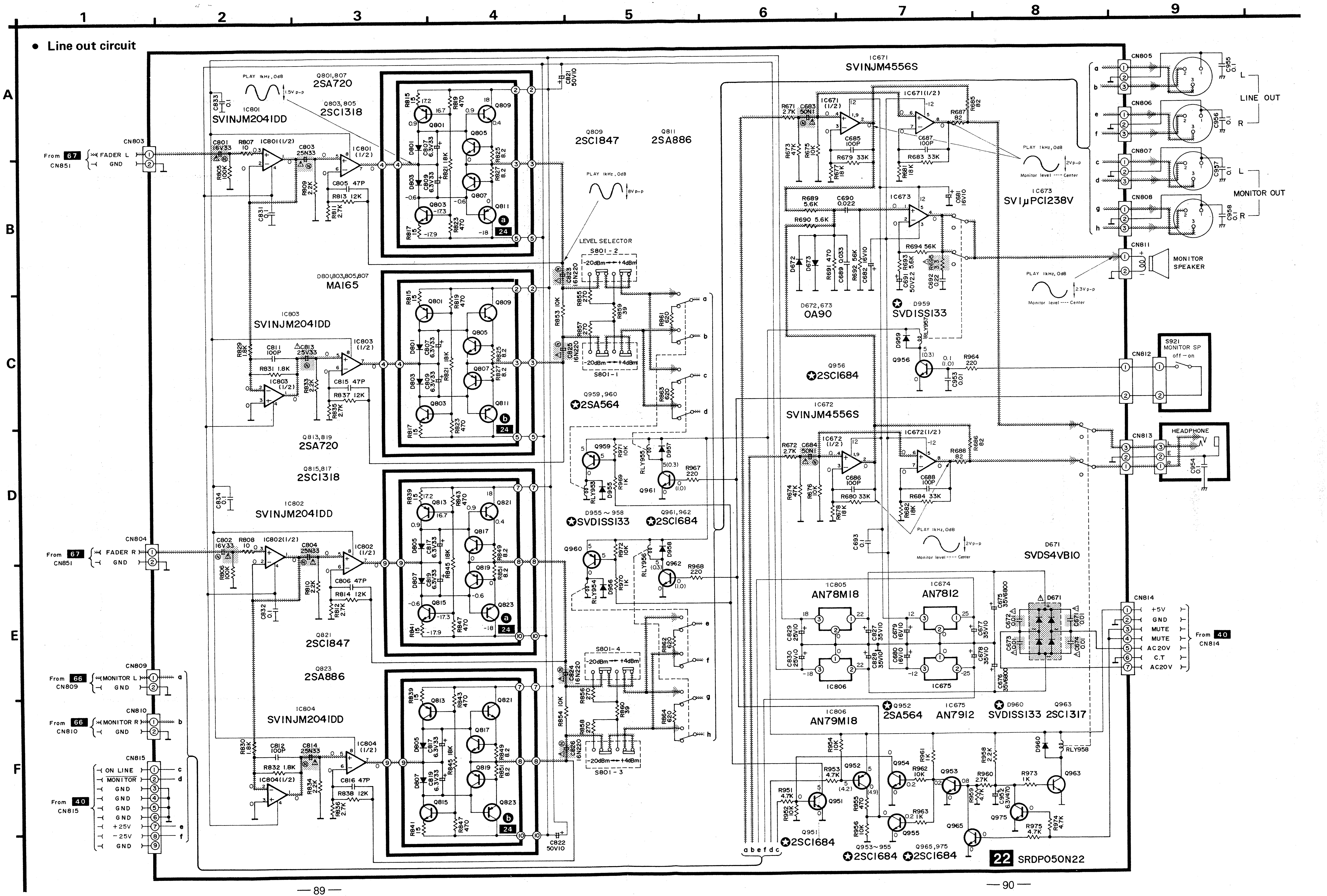
- **CPU circuit**


1
2
3
4
5
6
7
8
9
10
40
30
63
CN63
From 10 CN63
AC 9.2V
AC 18V
AC CT
AC 20V
To CN601
CN814
To 22 CN814
+5V
D.GND
MUTE
CN702 ⑰ pin
CN107
To 01 CN107
+12V
-12V
GND
CN62
From 10 CN62
+13V
-40V
AC 4.5V
+32V
To CN701 ⑲ pin
To CN705
PC931,932
ON2170
PC931
PC932
R931 470
R932 470
CN1106
PD2
PD1
CN501
To 04 CN501
FL CK
FL DATA
RST
To CN702
To CN706 ⑬
CN704(1/2)
To CN704
RD
MI
B/A SEL
C/D SEL
CN703
To CN703
IEOS
IEOO
INT
CLOCK
CN707
CN703 (1/3)
IC701
SVILH0080A
IC702
DN74LS245
IC703
DN74LS245
IC704
DN74LS245
IC705
SVIHN2764TDG
IC706
SVIHN2764TDG
IC707
SVIµPD4016CI
IC708
DN74LS245
IC721
SVITC40H004P
IC722
DN74LS138
IC723
SVITC40H000P
IC725
SVITC40
IC733
IC734
Q701,702
2SD636
D709,710
SVDISS133
D701
MA4056
X701 4MHz
R701 1M
C701 150P
C702 150P
R710 4.7K
R707 47K
C703 0.1
R702 10K
R703 47K
R704 10K
R705 4.7K
R706 1K
R742 4.7K
C704 16V22
C742 50V100
C743 0.01
R737 470
R736 470
D709
D710
Q701
Q702
0.26 µsec.
4MHz
1.1µs
C715 6.3V470
C716 6.3V470
C717 6.3V470
C718 6.3V470
C721
C751
C721~728,730~740
744~751
0.01x27

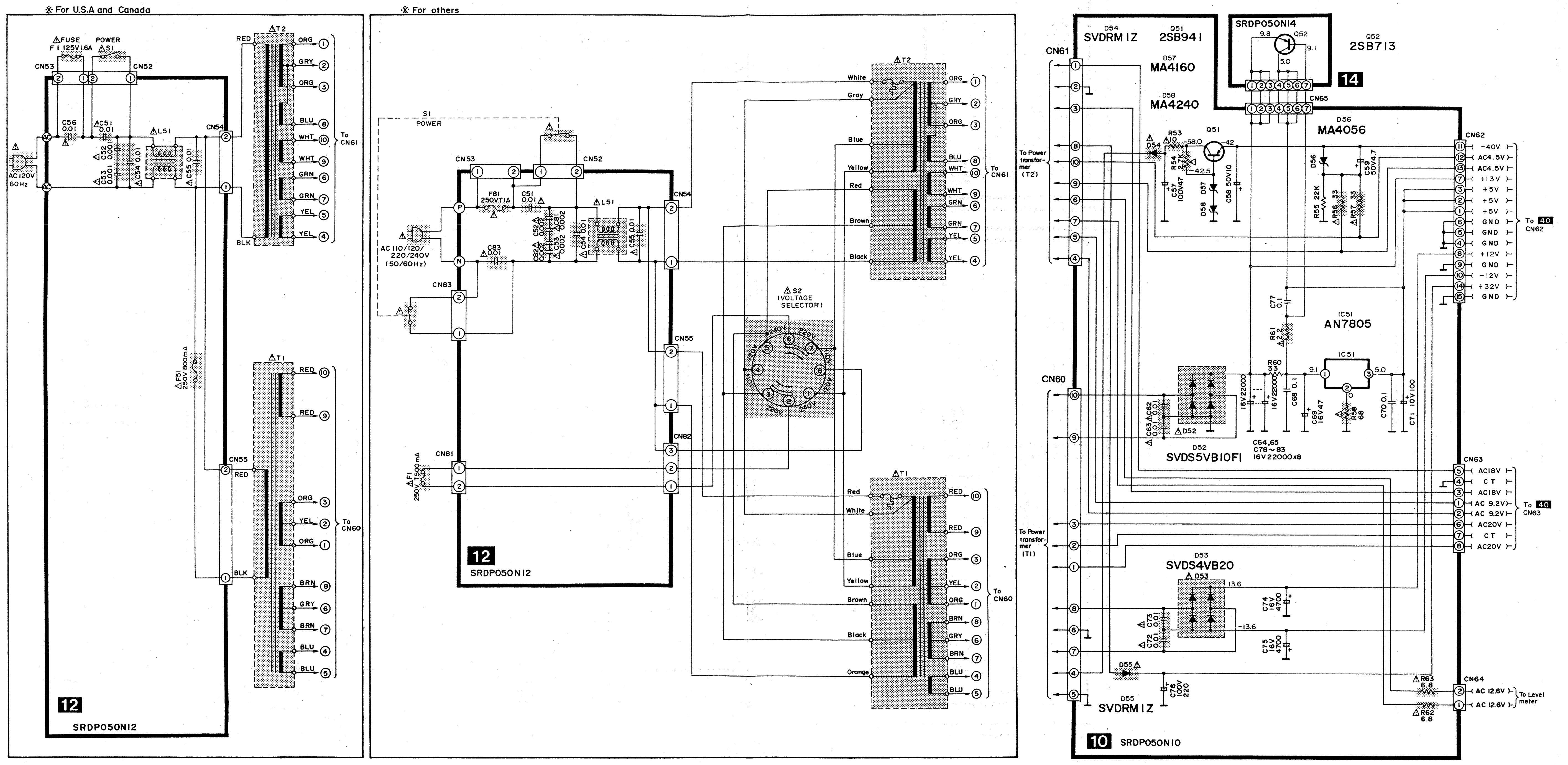

IC708 DN74LS245
IC723 SVITC40H000P
IC724 SVITC40H032P
IC729 SVITC40H000P
IC730 SVITC40H032P
IC728 SVITC40H008P
IC722 DN74LS138
IC725 SVITC40H008P
IC712 SVILH0082A
IC710 SVILH0082A
IC732
IC735 DN74LS123
IC736 DN74LS32
IC727 MN4528B
IC726 MN4093B
IC731 SVITC40H004P
IC713 SVILH0081A
IC709 SVILH0081A
IC737 SVIHD7417
Q706 2SB641
Q703 2SC1567
Q704 2SD636
Q708, 709 2SD636
Q707 2SD636
Q705 2SD636
D702 SVDISS133
D703,704 SVDISS133
D711 MA1150
D705~708 SVDISS133
R715~720 4.7K x 6
MODE SELECTOR
S701
0.63μs
1.1μs


15
16
17
18
19
20
21
22
23
24
IC736
DN74LS32
IC735
DN74LS123
R734 10K
C741 50V0.1
0.63μs
R715~720 4.7K×6
D703,704
SVDISS133
D704
Q704
R726 1K
R728 680K
Q704
2SD636
IC713
SVILH0081A
IC727
MN4528B
IC731
SVITC40H004P
R739 10K
R738 4.7K
Q709
Q708
R741 4.7K
R740 10K
C709 0.1
D711
MA1150
R711 10K
C705 100P
IC726
R714 10K
C706 100P
Q708, 709
2SD636
R713 4.7K
C707 50V0.1
MN4093B
R722 4.7K
Q707
R708 47K
Q707
2SD636
R721 4.7K
C708 50V0.1
R723 4.7K
R730 47K
Q705
2SD636
IC709
SVILH0081A
Q706
2SB641
R709 10K
R712 4.7K
R729 470
R732 1K
Q703
2SC1567
IC737
SVIHD7417
D702
SVDISS133
MODE SELECTOR
S701
D705~708
SVDISS133
CN705
40
CN706
To CN62
To CN501⑤ pin
CN704 (1/2)
R727 270
CN702
+5V
CN501 ④
CN814 ③
CN501 ③
CN703(1/3)
CN701
To CN62⑦ pin
Q522
2SB641
Q521
2SD636
RELAY DRIVE
CN112
MSTB 1
MSTB 0
M DATA 3
M DATA 2
M DATA 1
M DATA 0
H OPEN
H CLOSE
To 01 CN112
CN1103
SOL−
SOL+
OPEN
CN1111
GND
REV
FWD
TCNT
KICK F/R
KICK
TR ON
TT ON
To 01 CN111
PC933
ON2170
65
CN1105
DPD+
DPD−
DLED+
DLED−
CN1104
DOOR SW+
DOOR SW−
S901
DOOR SW
close open
01
68
To 03
CN752
STAND BY
K DATA 4
K DATA 2
K DATA 3
K DATA 0
K DATA 1
LCK
LSTB
L DATA
To 52 CN752
CN751
+5V
KSTB 5
KSTB 4
KSTB 3
KSTB 2
KSTB 1
KSTB 0
CUE
To 52 CN751
D523
R523 10K
D521
RLY521
Q522
R524 3.3K
D524
RLY523
RLY522
CN815
R521 10K
R522 3.3K
Q521
D522
D521~524
SVDISS133
CN1107
ONLINE SW
hot
STANDBY LAMP
ONLINE LAMP
CUE SW
REMOTE CONTROL

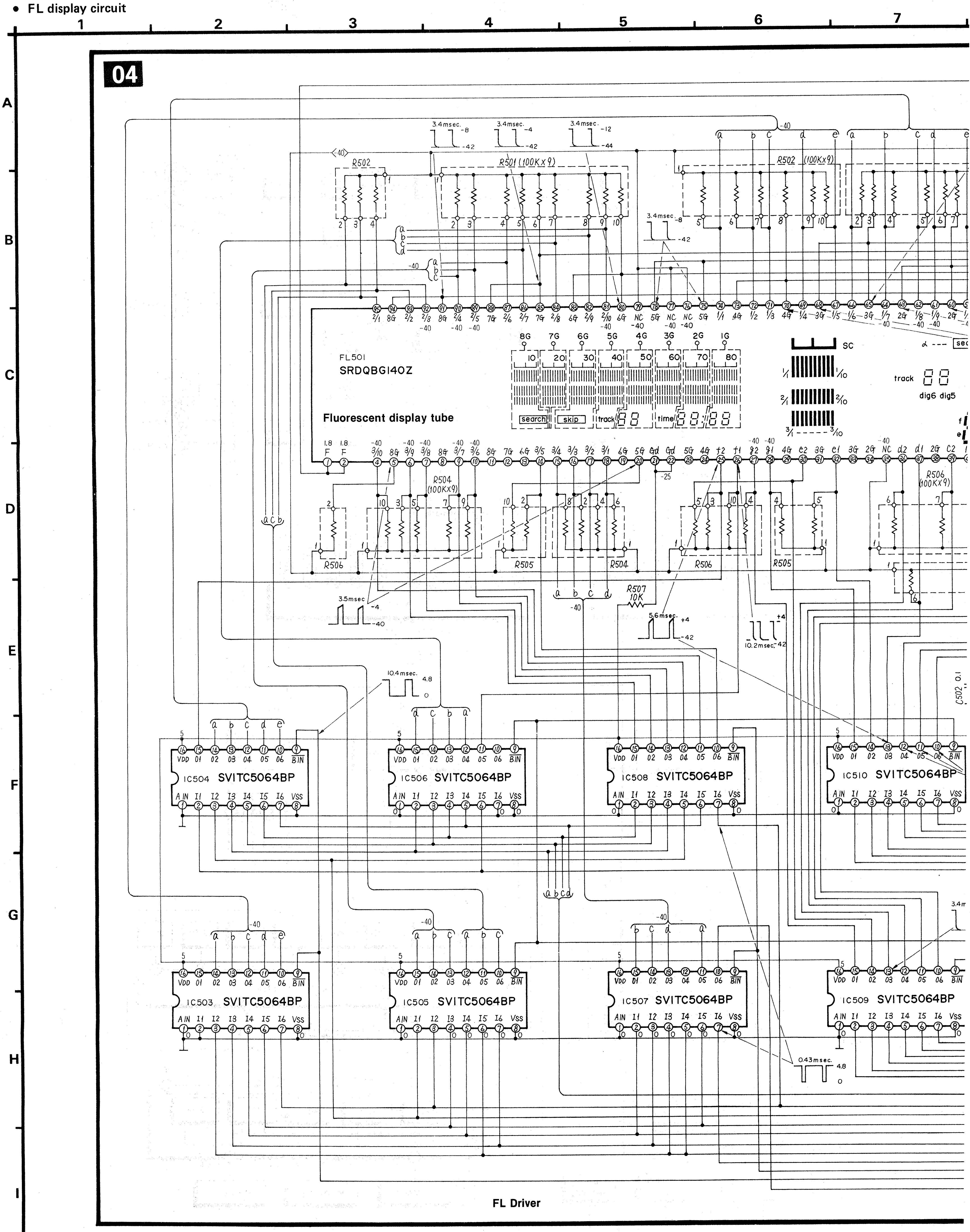
- **Line out circuit**


1
2
3
4
5
6
7
8
9
A
B
C
D
E
F
From 67 CN851
FADER L
GND
CN803
FADER R
CN804
From 66 CN809
MONITOR L
From 66 CN810
MONITOR R
From 40 CN815
ON LINE
MONITOR
+25V
−25V
GND
PLAY 1kHz, 0dB
1.5V p-p
Q801,807 2SA720
Q803,805 2SC1318
IC801 SVINJM2041DD
IC803 SVINJM2041DD
IC802 SVINJM2041DD
IC804 SVINJM2041DD
Q809 2SC1847
Q811 2SA886
D801,803,805,807 MA165
Q813,819 2SA720
Q815,817 2SC1318
Q821 2SC1847
Q823 2SA886
LEVEL SELECTOR
S801-1
S801-2
S801-3
S801-4
−20dBm ←→ +4dBm
8V p-p
Q959,960 ✪2SA564
D955 ~ 958 ✪SVDISS133
Q961,962 ✪2SC1684
IC671 SVINJM4556S
IC672 SVINJM4556S
IC673 SV1μPC1238V
D672,673 OA90
D959 ✪SVDISS133
Q956 ✪2SC1684
Monitor level ---- Center
2Vp-p
23Vp-p
CN805
CN806
CN807
CN808
LINE OUT
MONITOR OUT
CN811
MONITOR SPEAKER
CN812
S921 MONITOR SP off – on
CN813
HEADPHONE
D671 SVDS4VB10
IC805 AN78M18
IC674 AN7812
IC806 AN79M18
IC675 AN7912
Q952 ✪2SA564
D960 ✪SVDISS133
Q963 2SC1317
CN814
+5V
GND
MUTE
MUTE
AC20V
C.T
AC20V
From 40 CN814
Q951 ✪2SC1684
Q953~955 ✪2SC1684
Q965,975 ✪2SC1684
RLY958
22 SRDP050N22

- **Power source circuit**

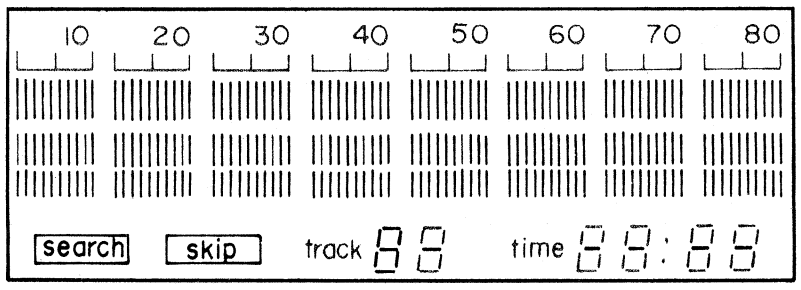

※ For U.S.A and Canada
⚠FUSE F1 125V1.6A
POWER ⚠S1
CN53
CN52
CN54
CN55
⚠T2
⚠T1
⚠L51
AC 120V 60Hz
⚠F51 250V 800mA
To CN61
To CN60
12
SRDP050N12
※ For others
S1 POWER
F81 250VT1A
AC 110/120/220/240V (50/60Hz)
CN83
CN81
CN82
⚠F1 250V T500mA
⚠S2 (VOLTAGE SELECTOR)
12
SRDP050N12
SRDP050N14
Q52 2SB713
14
CN65
D54 SVDRM1Z
Q51 2SB941
D57 MA4160
D58 MA4240
D56 MA4056
CN61
CN62
To Power transformer (T2)
To 40 CN62
IC51 AN7805
CN60
D52 SVDS5VB10F1
C64,65 C78~83 16V22000×8
CN63
To 40 CN63
To Power transformer (T1)
D53 SVDS4VB20
D55 SVDRM1Z
CN64
To Level meter
10
SRDP050N10

• FL display circuit

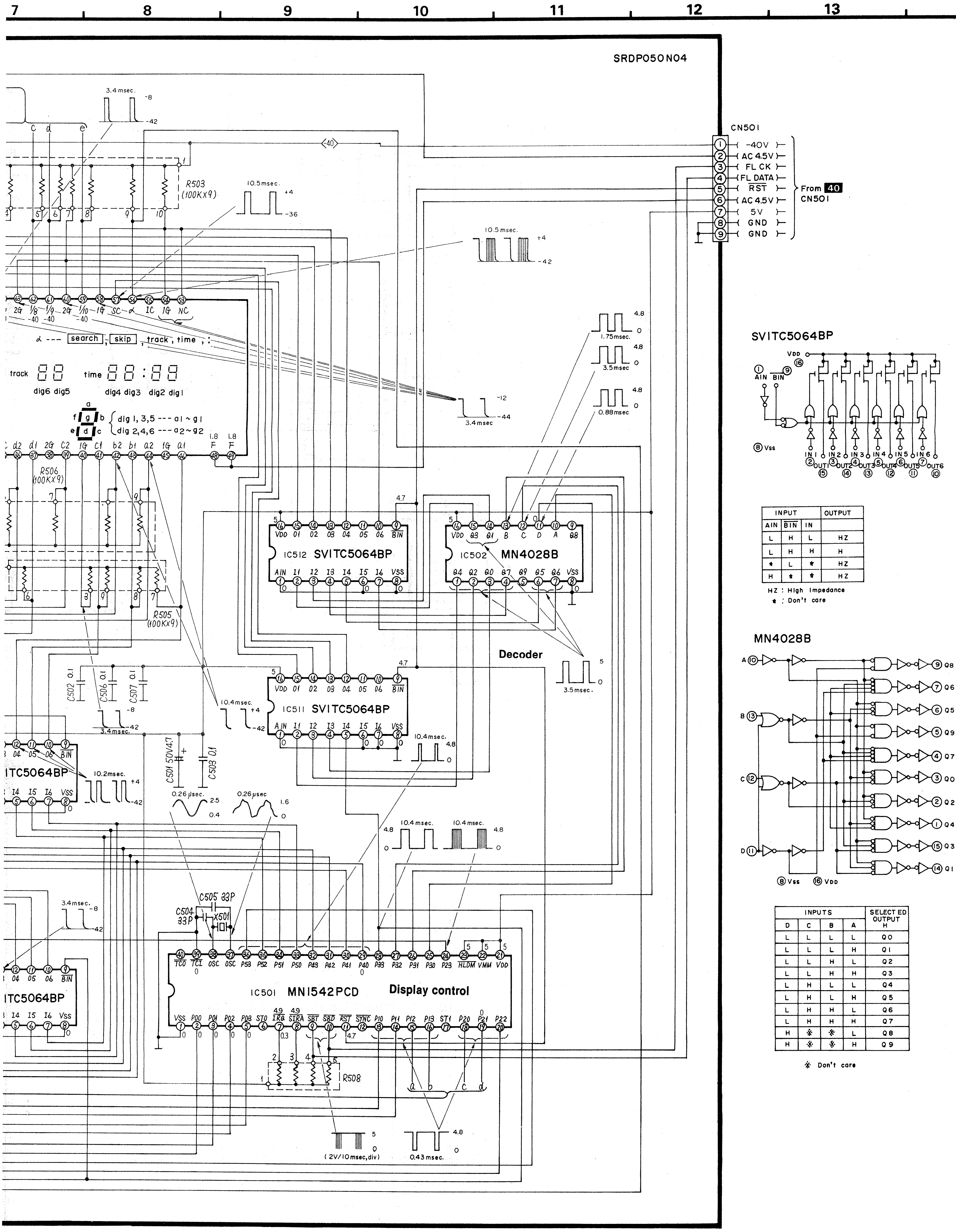

1
2
3
4
5
6
7
A
B
C
D
E
F
G
H
I
J
04
R502
R501 (100K×9)
R502 (100K×9)
3.4msec.
FL501
SRDQBG140Z
Fluorescent display tube
search
skip
track
time
SC
dig6 dig5
R504 (100K×9)
R505
R506
R506 (100K×9)
R507 10K
3.5msec
5.6msec
10.2msec
10.4msec.
0.43msec.
C502 0.1
IC503 SVITC5064BP
IC504 SVITC5064BP
IC505 SVITC5064BP
IC506 SVITC5064BP
IC507 SVITC5064BP
IC508 SVITC5064BP
IC509 SVITC5064BP
IC510 SVITC5064BP
VDD O1 O2 O3 O4 O5 O6 BIN
AIN I1 I2 I3 I4 I5 I6 VSS

FL Driver

• Fluorescent display tube


10
20
30
40
50
60
70
80
search
skip
track
time

Notes:
1. The voltage values and waveformes are the reference v
by DC electronic voltmeter (high impedance) and osci
The fluorescent display is as shown on the left. (The
2. —— : +B, –B voltage lines.


7
8
9
10
11
12
13
14
SRDP050N04
CN501
① -40V
② AC 4.5V
③ FL CK
④ FL DATA
⑤ RST
⑥ AC 4.5V
⑦ 5V
⑧ GND
⑨ GND
From 40 CN501
R503 (100K×9)
R505 (100K×9)
R506 (100K×9)
R508
α --- search, skip, track, time, :
track
time
dig6 dig5
dig4 dig3 dig2 dig1
dig 1, 3, 5 --- a1 ~ g1
dig 2, 4, 6 --- a2 ~ g2
IC512 SVITC5064BP
IC502 MN4028B
IC511 SVITC5064BP
IC501 MN1542PCD
Display control
Decoder
C502 0.1
C506 0.1
C507 0.1
C501 50V4.7
C503 0.1
C504 33P
C505 33P
X501
3.4 msec.
10.5 msec.
1.75 msec.
3.5 msec.
0.88 msec.
10.4 msec.
10.2 msec.
0.26 μsec.
0.43 msec.
(2V/10msec, div)
SVITC5064BP
MN4028B
AIN
BIN
⑧ Vss
⑯ VDD
IN1 IN2 IN3 IN4 IN5 IN6
OUT1 OUT2 OUT3 OUT4 OUT5 OUT6
A ⑩
B ⑬
C ⑫
D ⑪
⑨ Q8
⑦ Q6
⑥ Q5
⑤ Q9
④ Q7
③ Q0
② Q2
① Q4
⑮ Q3
⑭ Q1

INPUT			OUTPUT
AIN	$\overline{BIN}$	IN	
L	H	L	HZ
L	H	H	H
★	L	★	HZ
H	★	★	HZ

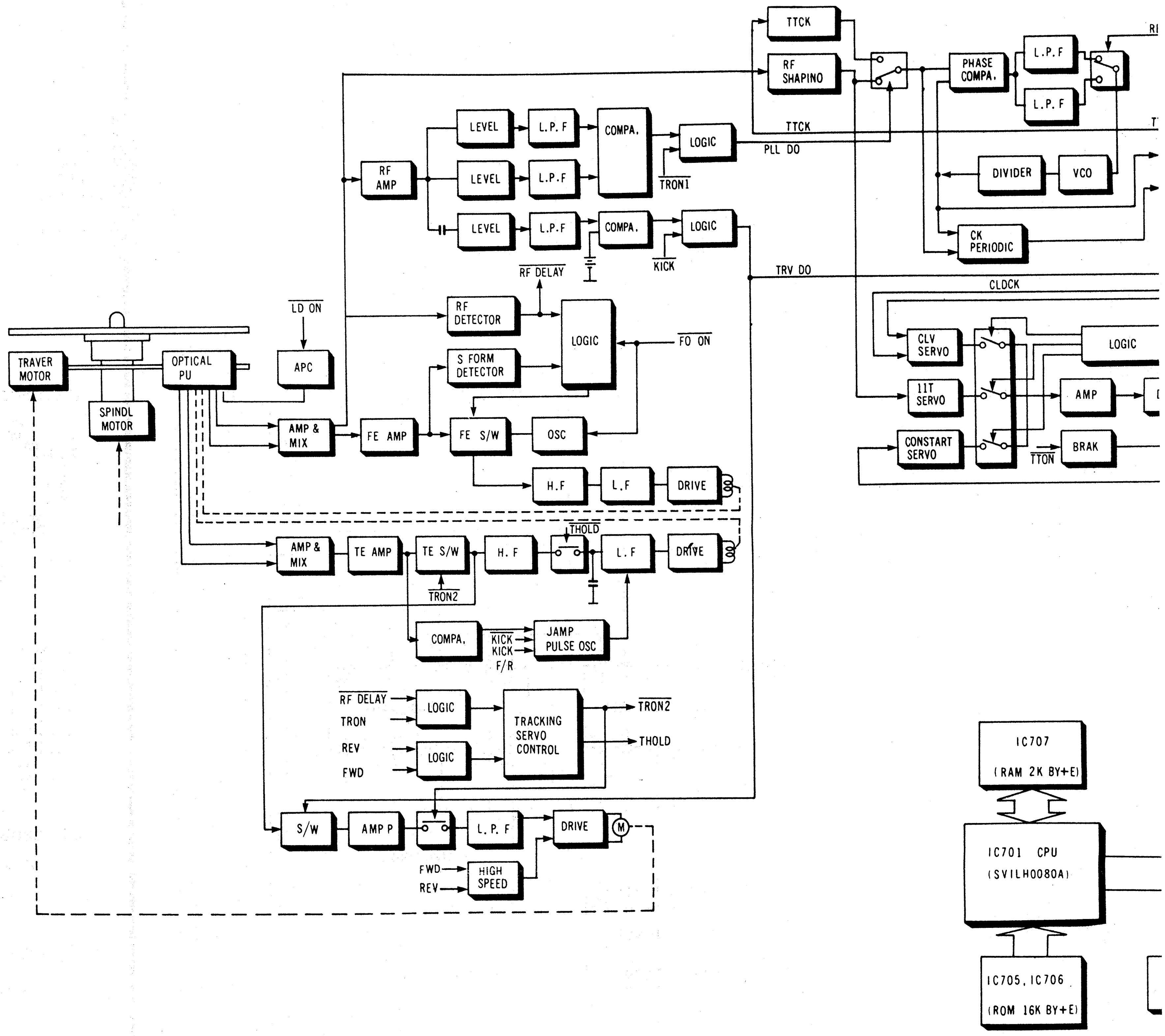
HZ : High Impedance
★ : Don't care

INPUTS				SELECTED OUTPUT H
D	C	B	A	
L	L	L	L	Q0
L	L	L	H	Q1
L	L	H	L	Q2
L	L	H	H	Q3
L	H	L	L	Q4
L	H	L	H	Q5
L	H	H	L	Q6
L	H	H	H	Q7
H	※	※	L	Q8
H	※	※	H	Q9

※ Don't care

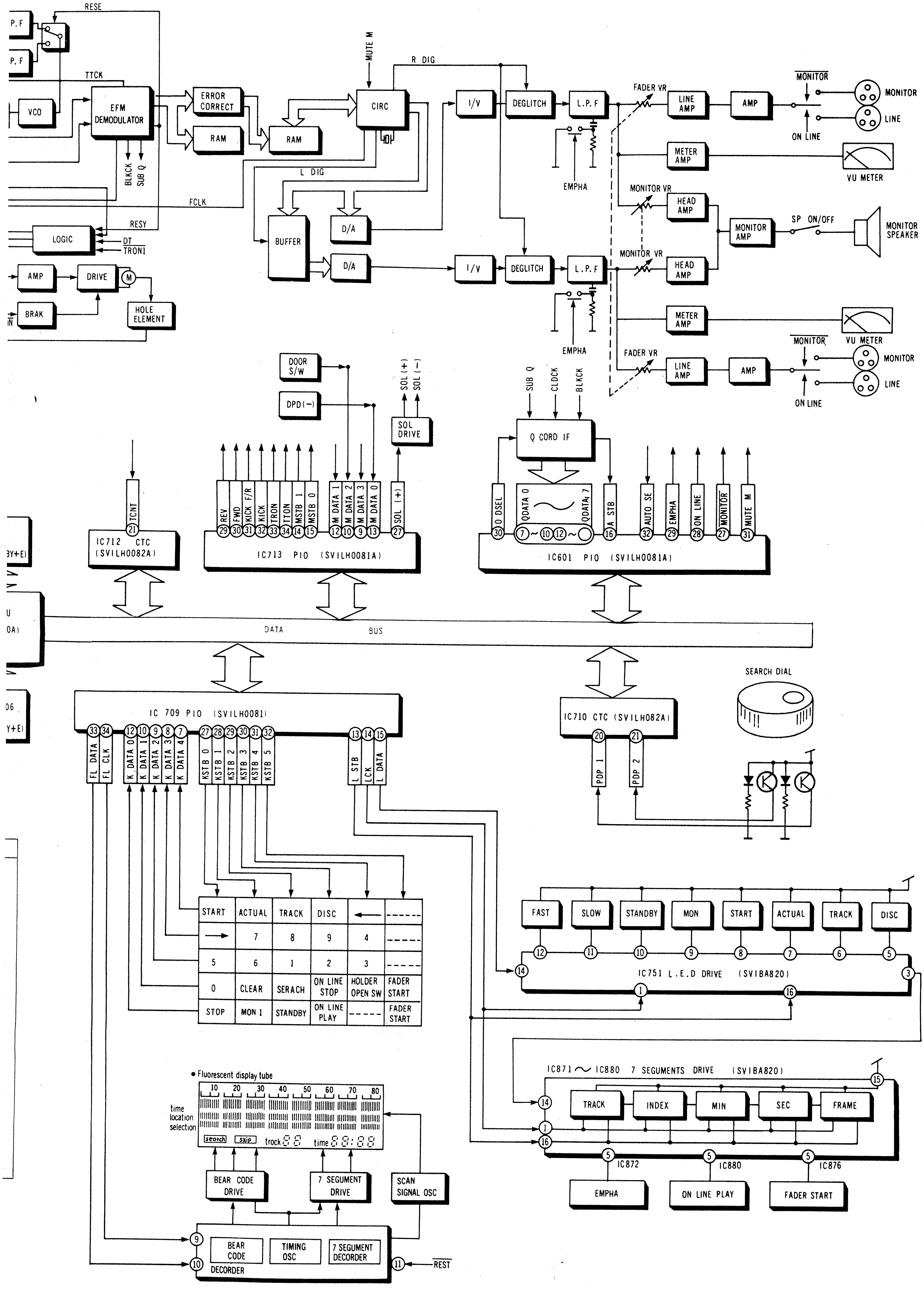
e the reference voltage values of this unit measured
edance) and oscilloscope on the basis of chassis.
n the left. (The red display area is illuminated.)

■ BLOCK DIAGRAM


TTCK
RF SHAPINO
PHASE COMPA.
L.P.F
L.P.F
TTCK
PLL DO
LEVEL
L.P.F
COMPA.
LOGIC
RF AMP
LEVEL
L.P.F
TRON1
LEVEL
L.P.F
COMPA.
LOGIC
KICK
RF DELAY
TRV DO
DIVIDER
VCO
CK PERIODIC
CLOCK
LD ON
RF DETECTOR
LOGIC
FO ON
S FORM DETECTOR
TRAVER MOTOR
OPTICAL PU
APC
SPINDL MOTOR
AMP & MIX
FE AMP
FE S/W
OSC
H.F
L.F
DRIVE
CLV SERVO
LOGIC
11T SERVO
AMP
CONSTART SERVO
TTON
BRAK
THOLD
AMP & MIX
TE AMP
TE S/W
H. F
L.F
DRIVE
TRON2
COMPA.
KICK
KICK
F/R
JAMP PULSE OSC
RF DELAY
TRON
REV
FWD
LOGIC
LOGIC
TRACKING SERVO CONTROL
TRON2
THOLD
S/W
AMP P
L. P. F
DRIVE
M
FWD
REV
HIGH SPEED
IC707
(RAM 2K BY+E)
IC701 CPU
(SVILH0080A)
IC705, IC706
(ROM 16K BY+E)

Name	Active	Function	Command	I/O
A STB		Data admitting control signal	IC-603 ⑥⑨	
BLKCK		Block control signal	LSI-1 ⑩	O
CLOCK		Frame control signal (= 4.32MHz)	LSI-1 ⑨	O
DPD 1		Input signal of search dial counter	IC-710 ⑳	I
DPD 2		Input signal of search dial counter	IC-710 ㉑	I
EMPHA	"High"	Enphasis control signal	IC-601 ㉙	O
$\overline{\text{F0 ON}}$	"Low"	Focus search start and focus servo loop	IC-713 ㉞	O
$\overline{\text{FWD}}$	"Low"	Switch control singal	IC-713 ㉚	O
FCLK		Forward direction control signal	LSI-1 ⑧	O
FL KCK		Xtal divided signal (4.32MHz)	IC-709 ㉞	O
FL DATA		Clock signal of FL display	IC-709 ㉝	O
$\overline{\text{KICK}}$	"Low"	Data signal of FL display	IC-713 ㉛	O
$\overline{\text{KICK}}$ F/$\overline{\text{R}}$	"Low"	Track jump control signal	IC-709 ㉗~㉜	O
K STB 0 ~ 5		Track jump direction control signal	IC-709 ⑦~⑫	I
$\overline{\text{LD ON}}$	"Low"	Strbe signal for key matrix	IC-713 ㉞	O
L STB		Data input signal for key matrix	IC-709 ⑬	O
L CK		Laser lighting command	IC-709 ⑭	O
L DATA		Strobe signal for 7 segment	IC-709 ⑮	O
$\overline{\text{L DIG}}$	"Low"	Clock signal for 7 segment	LS-1 ㉕	O
$\overline{\text{MONITOR}}$	"Low"	Data input for 7 segment	IC-601 ㉗	O
MUTE M	"High"	Deglitcher signal for L channel	IC-601 ㉛	O

Name	Active	Function	Command	I/O
M DATA 0 ~ 3		Monitor play control signal	IC-713 ⑭⑮	O
M STB 0 ~ 7		LSI-1 control signal	IC-713 ⑨~⑬	I
ON LINE	"High"	Data input signal for sub matrix	IC-601 ㉘	O
PLL D0	"High"	Online play control signal	IC-406 ③	O
Q DATA 0 ~ 7		Drop out ditection cintrol signal Q data (8 bit data)	IC-601 ⑦~⑩ ⑬~⑮	I
QL SEL		Selection control signal of Q data	IC-601 ㉚	O
$\overline{\text{RF DELAY}}$	"Low"	RF detection control signal	IC-101 ④	O
$\overline{\text{REV}}$	"Low"	Reverse skip control signal	IC-713 ㉙	O
RESY	"High"	Digital system synce flag control signal	LSI-1 ⑬	O
$\overline{\text{R DIG}}$	"Low"	Deglitcher signal R channel	LSI-1 ㉔	O
SUB Q		Q data (8 bit data)	LSI-1 ⑭	O
SOL	"Low"	Door plunger control signal	IC-713 ㉗	O
TR HOLD	"High"	Tracking servo hold control signal	IC-209 ③	O
$\overline{\text{TR ON 1}}$	"Low"	RF detection control signal for IC-713	IC-713 ㉝	O
$\overline{\text{TR ON 2}}$	"Low"	Tracking servo loop switch control signal	IC-209 ④	O
TRV D0	"High"	Traverse drop out control signal		
$\overline{\text{TT ON}}$	"Low"	Spindle motor strat signal	IC-713 ㉞	O
TTCK		Xtal divided signal (for PLL control)	LSI-1 ⑰	O
TCNT		Track counter signal	IC-712 ㉑	I
PCK		Sampling clock signal of EFM data	LSI-1 ③	I
EFM		EFM data	LSI-1 ④	I


RESE
TTCK
VCO
EFM DEMODULATOR
BLKCK
SUB Q
ERROR CORRECT
RAM
RAM
CIRC
MUTE M
R DIG
L DIG
FCLK
RESY
LOGIC
DT
TRON1
AMP
DRIVE
M
BRAK
HOLE ELEMENT
BUFFER
D/A
D/A
I/V
I/V
DEGLITCH
DEGLITCH
L.P.F
L.P.F
EMPHA
EMPHA
FADER VR
LINE AMP
AMP
MONITOR
ON LINE
MONITOR
LINE
METER AMP
VU METER
MONITOR VR
HEAD AMP
MONITOR AMP
SP ON/OFF
MONITOR SPEAKER
MONITOR VR
HEAD AMP
METER AMP
VU METER
FADER VR
LINE AMP
AMP
MONITOR
ON LINE
MONITOR
LINE
DOOR S/W
DPD(−)
SOL DRIVE
SOL (+)
SOL (−)
SUB Q
CLDCK
BLKCK
Q CORD IF
TCNT
IC712 CTC (SVILH0082A)
REV
FWD
KICK F/R
KICK
TRON
TTON
MSTB 1
MSTB 0
M DATA 1
M DATA 2
M DATA 3
M DATA 0
SOL (+)
IC713 PIO (SVILH0081A)
O DSEL
QDATA 0
QDATA 7
A STB
AUTO SE
EMPHA
ON LINE
MONITOR
MUTE M
IC601 PIO (SVILH0081A)
DATA BUS
IC 709 PIO (SVILH0081)
FL DATA
FL CLK
K DATA 0
K DATA 1
K DATA 2
K DATA 3
K DATA 4
KSTB 0
KSTB 1
KSTB 2
KSTB 3
KSTB 4
KSTB 5
L STB
LCK
L DATA
IC710 CTC (SVILH082A)
PDP 1
PDP 2
SEARCH DIAL
START
ACTUAL
TRACK
DISC
7
8
9
4
5
6
1
2
3
0
CLEAR
SERACH
ON LINE STOP
HOLDER OPEN SW
FADER START
STOP
MON 1
STANDBY
ON LINE PLAY
FADER START
FAST
SLOW
STANDBY
MON
START
ACTUAL
TRACK
DISC
IC751 L.E.D DRIVE (SVIBA820)
• Fluorescent display tube
10
20
30
40
50
60
70
80
time
location
selection
search
skip
track
time
BEAR CODE DRIVE
7 SEGUMENT DRIVE
SCAN SIGNAL OSC
BEAR CODE
TIMING OSC
7 SEGUMENT DECORDER
DECORDER
REST
IC871 ∼ IC880 7 SEGUMENTS DRIVE (SVIBA820)
TRACK
INDEX
MIN
SEC
FRAME
IC872
IC880
IC876
EMPHA
ON LINE PLAY
FADER START